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By-Goodfriend, Harvey J; Mosher, Robert

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Findings are presented of a preliminary investigation into an integrated approach to the planning of higher education facilities. Problems confronting college and university planners are defined; factors affecting current conditions isolated; and opportunities for seeking solutions suggested. In this first step of a two-phase program, resources available to planners are surveyed, and the process of facilities planning is reviewed. A bibliography of recent literature in the areas of community colleges, educational technology and the new media, facilities planning, higher education, and urban colleges, is presented. Also included is a list of organizations, agencies, and other sources of information. Observations and findings are offered regarding the planning of fifteen new community colleges. In addition, results of an experiment in which these observations and findings were tested by simulating the planning of a hypothetical urban college are presented. Also included is a summary outline of the second phase of the project. (FS)

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FINAL REPORT

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A PRELIMINARY INVESTIGATION INTO AN INTEGRATED APPROACH TO THE PLANNING OF HIGHER EDUCATIONAL FACILITIES

August, 1969

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Final Report

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A Preliminary Investigation into an Integrated Approach to the Planning of Higher Educational Facilities

Harvey J. Goodfriend
San Diego State College
San Diego, California

Robert Mosher, A.I.A.
Mosher, Drew, Watson & Associates
La Jolla, California

August, 1969

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PREFACE

The convergence of powerful forces at this point in time is causing enormous attention and pressure to focus upon higher education. Long revered as the citadel of truth seekers and a community of scholars, colleges and universities today are viewed as the institutions, often by default or last resort, that must solve some of the nation's most complex and frightening social problems. Unfortunately many colleges are ill-prepared to even meet their immediate responsibilities, let alone this awesome mission. This study probes just one dimension of the problems facing higher education: the process of planning facilities. The impact of this aspect is, however, by its inherent nature, profound. Too often facilities are planned, developed, and constructed without reference to or consideration of the goals, needs, or realities of the institution. Rather than enhance effectiveness and create anenvironment sympathetic to learning, they often impede, constrain, and restrict educational potentialities. It is to this problem we address ourselves with recognition that even in less complex times a solution would be difficult. We are warned by thoughtful and prudent people that fundamental change in higher education is inevitable and if it does not evolve within a reasonable time spectrum, it will be brought about through other less attractive means.

What is basically at stake is not the future of Harvard or the University of California, but the several thousand public institutions that are responsible for post-high school education. The nature of the challenge will not permit tradition to preclude an adaptative response even if this necessitates a massive reorganization of the system of higher education and the displacement of some long-established institutions.

In addition, a shift in the focus from a teaching environment to a learning-oriented environment may herald a major turning point in the direction of contemporary higher education. If this view becomes pervasive,as it must, and current trends in elementary and secondary education may prove it will, the planning of facilities will need to respond accordingly. Our goal is to prepare for this prospective yet inevitable change.

Our long-range objective is to establish a coherent and rational process of planning and developing college and university facilities, integrating the fields of education, academic planning, environmental design, systems analysis, communications, and financial and administrative management. This first phase, a preliminary investigation, sought to determine the feasibility and establish the basis for a major project, the objectives of which would be the programming, planning, and building of an actual community college.

We are grateful to the many individuals who generously gave unselfishly of their time and were unusually candid in discussing their own experiences. Their interest and concern further convinces us of the significance of this investigation. Ten people contributed two long days to a simulated planning session. State agencies and numerous organizations provided substantial quantities of materials and wrote detailed letters defining their activities. Finally, we are particularly grateful to Judy Webb and Frances Dalrymple for their unselfish dedication in assisting us in this task.

We naturally must assume full responsibility for any errors and omissions. It is our intent to make this only a beginning. The problem is far too exciting, provocative, and critical to stop here.

Harvey J. Goodfriend

Robert Mosher

August 1, 1969
San Diego, California

SUMMARY

This report presents the findings of a preliminary investigation into an integrated approach to the planning of higher educational facilities. The problems that confront colleges and universities are monumental. Not only must they accommodate an anticipated doubling in enrollment, they are simultaneously expected to deal with many of the most critical problems facing society. There has been insufficient attention given to developing systems of comprehensive planning which include academic, environmental, financial, and managerial considerations. This study attempts to define these problems, isolate the factors affecting them, and suggest opportunities for seeking solutions.

In this first step of a two-phase program, the objective was to survey the resources available to planners, and study the process of facilities planning. A review of the recent literature was compiled, and organizations, agencies, and other sources of information were listed. The scope of the investigation was limited to community colleges, based upon the premise that they represent a dynamic growth area in higher education and lend themselves to a study of this nature. The planning of fifteen new community colleges which had received some form of national recognition was studied through field interviews. In addition, these findings and observations were tested by simulating the planning of a hypothetical urban college.

In summarizing this data, four factors appeared crucial in successful planning. They are: (1) effective leadership by the college president; (2) expanding planning from dealing with single dimensions to a broadly defined and integrated process; (3) adequacy of human and informational resources, both qualitatively and quantitatively; and (4) sufficient time to carefully and precisely examine alternatives in making decisions. These may appear obvious to many, yet they are quite often unheeded. This report includes a summary outline of the second phase of the project. In it an effort would be made to establish and apply a coherent and rational process of planning college and university facilities integrating the fields of education, academic planning, environmental design, systems analysis, communication, and administrative management.

CHAPTER I

THE CURRENT CONDITIONS

> . . . In a world increasingly rushed to death
> the long-range waits on the immediate
> What is URGENT takes priority over what is merely IMPORTANT,
> so that what is important will be attended to only when it becomes urgent,
> which may be too late.
>
> Louis J. Halle

Higher education today faces urgent problems, solutions to which must not be left to chance. If we are to meet the needs, indeed the demands of contemporary society, we must recognize and define these problem areas and then establish realistic and creative programs. Solutions must not be developed in crisis, but rather through thoughtful, constructive programming involving the best and broadest based resources we have at our disposal. The population explosion and society's changing needs are placing ever-increasing demands upon our colleges and universities. A new attitude toward the learning process and related advances in technology are altering the manner in which educators, administrators, students, and architects view their roles in educational planning. Finding ways to provide financial support for both existing and new institutions is challenging every level of government. There is a distinct lack of well-directed attention being given to comprehensive planning encompassing academic, environmental, financial, and managerial considerations. This study attempts to define these problems in a general way, isolate the many and diverse factors affecting them, and suggest some guidelines aiming toward creative and workable solutions.

The Demands of Higher Education

If all that American higher education had to do was cope with the population explosion, it would be confronted with a nearly-astronomical task. Estimates differ widely concerning the college-age population during the next ten to twenty years. There is, however, general agreement that it will at least double. One source indicates that if the proportion of the population in the eighteen to twenty-one year age bracket continuing their education past high school remains constant, enrollments will still double by 1980. An estimate in California is that there may be 1.3 million students enrolled in public higher education by 1976. It is, however, recognized that the proportion of students continuing their education beyond the twelfth grade will not remain constant but is certain to rise significantly. Added to this source will be the ever-increasing number of individuals seeking to continue their education, improve their skills, or desiring the recreational and cultural benefits found in colleges. It is a reality that higher education is no longer considered solely a means for preparing young people to gain access to an occupation by acquiring a degree. Higher education is also seen as an institution to deal with some of the most serious problems confronting our society. In assisting the culturally different and educationally handicapped, particularly in urban centers, the colleges are viewed as a major resource. In the last few years this has been demonstrated in the rapid development of Educational Opportunities Program, funded by both State and Federal sources. Recognition of underlying problems has quickly brought the subject of black and brown studies to national attention. Colleges and unversities are expected to provide, not only the facilities and instruction, but leadership in these areas. The problems of the city are inextricably combined with education. Urban colleges and universities find themselves under enormous pressure to "do something about" young men and women who are not only unemployable, but, according to the Kerner Commission Report, constitute one of the most volatile ingredients in the present urban crisis. If current trends continue, it is evident that education will be at the center of continued racial tension. Rising militancy on all sides makes solution more imperative and yet more difficult to achieve.

Scientific and technological knowledge is multiplying so rapidly in every field that it is extremely difficult to keep pace with changes. Current information is quickly outdated and when combined with automation this means that a significant number of people require continuing education and retraining. Educational programs must constantly be updated and it is mandatory that those in the field keep pace. While certain jobs are disappearing, new occupations are being created. Higher education must establish a means of adapting and responding to this dynamic situation. Careers Magazine predicted that it would not be unusual in the future for individuals to have two or even three different occupations during a lifetime. Even the common affairs of daily life have been affected by the complexities of this electronic age and there is evidence of a desire, particularly on the part of young people, for a new "life style." The increase in leisure time and greater longevity of life have obvious implications in any effort to prepare an individual for survival in the coming years. It is not at all improbable that education will for many be, at least on a part-time basis, a life-time process. Even today nearly 17 million adult Americans are enrolled in some form of education. It is foreseeable that a pattern of alternating education and employment not just for retraining purposes, but for intellectual stimulation and reorientation may emerge.

Higher education may be forced to assume far broader responsibilities to the total community and, in the last quarter of this century, even become the nucleus of some communities around which most activities will revolve. Harold Gores predicts that,

> . . . for many parts of the central cities, the colleges may have become by 1980 the principal agencies through which viable neighborhoods are created and restored. The construction and management of neighborhoods will be a new and possibly unwelcome role for most colleges. But it will be a necessary one, for more people are more likely to entrust the rearrangement of their lives to an educational institution than to any other agency, public or private.[1]

A New Approach to Learning

A great deal is being written and said about learning. One often-heard demand in this area of so-called student unrest is the cry for greater "relevance." In recent months there has been an explosion of books and articles concerning how little we know about learning and how allegedly inadequate our current methods of teaching really are. It is unnecessary here to go into great detail, but it is perfectly clear that dramatic changes are likely to occur, not only in the mode of instruction, but in our entire conception of what should and can be learned; when, where, and how it should be learned; and in the entire organization of our approach to instruction, ranging from grades to curriculum. At this point the arguments have become too emotional, making it difficult to clearly identify a trend. However, several basic considerations emerge. According to Robert Dubin and Thomas C. Taveggia in The Teaching-Learning Paradox, an excellent monograph analyzing empirical data on the linkage between teaching and learning, there are no demonstrable differences measured by final examination data between various methods of teaching. It is their unequivocal conclusion that the most important question facing education is to discover what causes learning to occur. [2]

---

[1] Alvin C. Eurich (ed.), Campus 1980, p. 285.

Margaret Mead points out that contemporary forms of instruction are modeled on a system where the professor had one book and the student none. The professor's book was his own manuscript and he dictated slowly enough so students could write it down word for word. Four hundred years later the professor is still dictating as if there were no printing. It is sufficient to recognize at this point that the entire approach to our methods of education are under severe criticism and have been held open to question by sincere and reputable authorities in the field. Alvin C. Eurich points out that, "While it is true that some colleges and universities have conducted experiments and demonstrations designed to improve instruction, the cumulative and enduring impact is practically imperceptible."[3]

Coincidentally, electronics and education are being merged into a technological revolution that offers virtually unlimited potentialities. The state of the art is already extant to allow any application of mechanization that educators may conceive of. Already available and "on the shelf" are such systems as instructional television (ITV), computer assisted instruction (CAI), audio-tutorial (AT), programmed instruction (PI), individual response units, single concept film loops, dial access, and the myriad of possibilities resulting from combining two or more of these. Salesmanship and the search for quick and cheap panaceas have aroused antagonism on the part of students and teachers as they fear the emergence of a depersonalized, automated process of teaching. However, as Eurich has stated, ". . . in an era when students come in tidal waves, the vigorous, flexible, and _imaginative_ use of technology may be the only hope for avoiding regimentation. . . there is no choice but to bend to educational purposes every device and technique of modern communications science."[4] The crucial nature of software, the interface between the machine, the teacher, and the learner, is too often overlooked. Software requires substantial expenditures of time and money in preparation, must be of sufficient quality to compete with standards set by other forms of media the learner is already accustomed to and must be sufficiently adaptable to meet the specific needs of the individual teacher and program.

---

[2] Robert Dubin and Thomas C. Taveggia, _The Teaching-Learning Paradox_, pp. 1-8.

[3] Alvin C. Eurich, _Reforming American Education_, p.135.

[4] Ibid., p. 142.

Another condition which plays a part in this discussion is the chronic shortage of skilled and motivated teachers. Even in the post-Sputnik era, the profession of teaching has never acquired the economic or social status necessary to attract a sufficient number of people who find it inherently satisfying. The college professor often, in fact perhaps more often than not, looks for prestige, advancement, and rewards outside the classroom. William Arrowsmith, in a provocative and spirited essay appearing in Campus 1980, argues for greater emphasis upon the role of the teacher as a stimulator. He feels that what is needed are "men, not programs, galvanizers, not conductors."[5] The preparation of effective college teachers, in his opinion, cannot be successfully achieved as long as graduate schools place primary emphasis upon technical expertise. It is unnecessary to attempt to explain this phenomena, but only recognize that when combined with the certain growth in enrollments, new approaches to teaching and learning may no longer be viewed as a worthy experiment or option but a mandatory course of action.

An interesting development is the fact that several major industrial firms have begun to take interest in education itself as a new market for their services. For some time private industry has been supplying the military and government with training programs. Now they have begun to see that public education is running far behind the demand for services, and there may be an opportunity to bid for contracts to provide education and training under certain specified conditions. This already occurred in the Job Corps Program. There is no doubt that private enterprise can effectively and efficiently provide educational services and will not be confined by traditional modes and techniques of instruction. It is, however, a matter of public policy whether this is a direction that should be encouraged, since without exceptionally well-defined safeguards, education could easily become production oriented. As pressures on higher education mount, this alternative may become attractive to state and local governing boards.

The pressures for "change" or "reform," depending upon your point of view, are already upon the educational community. Accommodating and responding to these pressures will require a degree of rationality and systematic decision making that far exceeds anything previously witnessed in higher education.

The Financial Crisis

Financing higher education using the present sources of revenue is certain to become more difficult. Costs are rising at a rate that far exceeds potential increases in revenue from all existing sources. There is no need to itemize the cost increases experienced by colleges and universities; while legislative bodies resist larger appropriations, basic operating costs steadily rise. There is widespread reluctance on the part of taxpayers to continue to underwrite this rising expense. Discussion of higher tuition is irrelevant to the demands of meeting the needs of the poor and the minorities. Growing complexity in the professions and sciences makes it difficult to transfer to the student and his family the cost of training required specialists. Construction costs have risen so rapidly in the last year that if the trend continues, one seriously wonders how much longer communities will be capable of justifying new facilities. For example, the Dallas Junior College District carefully planned and budgeted for three new campuses, allowing a very comfortable margin for anticipated increases in costs. Bids recently opened for two of them were one-third over budget. The District had no choice but to proceed with construction recognizing that further delays would cost even more. This places their third college in serious jeopardy. While higher education will be charged with greater responsibilities and burdens, it may have even less money per student to accomplish the task.

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[5] Alvin C. Eurich (ed.), Campus 1980, pp. 116-133.

The Need For Planning

Since 1965, Werner Hirsch and his colleagues at the Institute of Government and Public Affairs, at the University of California, Los Angeles, have been studying problems in higher education, and for some time have been seeking ways to improve the ability of education to meet its responsibilities. Hirsch states:

> This generation of Americans stands at the point of impact between the headlong rush of aspirations and the inert structure of institutions. It must decide just how far to temper its aspirations and just how much to modify its institutions, because our institutional framework does not appear to be in all respects well suited to the emerging context in which life will have to be lived. We are not accustomed to choosing among the new alternatives clamoring for our attention. The choice is most perplexing where it consists of changing what we cherish to get what we covet, or else renouncing what we want in order to keep what we have. . .
>
> In the field of education, the predicament of choice between aspirations and institutions appears in perhaps its most poignant form, for it is here that the character of this generation's successors is determined. Of course, the choice never appears in quite the way in which it has been posed--it has myriad forms, such as the relation between federal support and local control, school versus work as ways to learn, the role of teacher and machine in the process of learning, and many others. But it is clear that what we mean by "education" is changing, and we will soon educate very differently than we do now.
>
> In our perilous age, education has become as essential to the survival of the species as procreation. In view of the centrality of education in a world whose habitability and development increasingly depend upon knowledge, understanding,

> and human action, we can no longer afford the traditional, casual style of educational development, in which resources may be least available where need is greatest, and change may be retarded where it is wanted most. Few would deny that a new degree of breadth, precision and coordination of educational planning is urgently needed. The challenge is in getting the needed planning done and used without undue sacrifice of other values.
>
> It behooves the nation to start to think through educational questions and opportunities more systematically, in the hope of responding adequately to the continuing challenge of change. In the case of education, the response must be anticipatory. If we fail to plan well, critical choices will be left to the interplay of fragmented interests which may serve more to block than to promote progress, and forces of the moment may impel us in directions we would rather avoid. An essential step is the synthesizing of alternatives so that choices can be made in terms of their respective total perceived costs and expected benefits.[6]

John Gardner, former Secretary of Health, Education, and Welfare, struck an optimistic note:

> I'm convinced that 20 years from now we'll look back at our school system today and ask ourselves how we could have tolerated anything as primitive as education today. I think the pieces of an educational revolution are lying around unassembled, and I think we're going to put them together in the next few years.[7]

Thus what is required is a means of putting the pieces together. Unfortunately planning has all too often been assigned a low priority. In addition, it is rarely performed as a comprehensive task in which all of the facets of the institution are developed in a systematic and integrated manner. Frequently facilities are planned and developed with too little reference to academic and economic requirements and with far too little recognition of the goals and objectives of the college.

The demand for additional educational facilities since World War II has made it extremely difficult to carefully and thoughtfully prepare long-range programs. Thus almost every college in the nation has been forced to plan on a "crash" basis. The nature of the political process and the system of financing new institutions has created an inherent lag in capacity so that when funding is finally approved, decision makers are under pressures and demands from the public to commit themselves instantaneously to programs and plans that have far-reaching consequences.

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[6] Werner Hirsch, "The Readiness for Change," American Behaviorial Scientist, (March, 1967), p. 2.

[7] Alvin C. Eurich, Reforming American Education, p. 217.

Educational planning as a profession has yet to develop. For most institutions the process of planning is viewed as a one-time activity and unless the institution is of sufficient size, it will not assign permanent staff to this function. Recruiting experienced educational planners is relatively impossible since there is no central source or graduate institution preparing them. The only feasible scheme is to hire them away from another institution. In a recent survey of sixty-four colleges in the mid-Atlantic states by Francis, Cauffman, Wilkinson, and Pepper, Architects and Planners, of Philadelphia, it was determined that planning is principally performed by the president and his immediate administrative staff. Generally he would prefer to work with the architect, the administrative staff, and faculty, and in a significant number of responses, outside consultants. In almost every instance, respondents indicated the most difficult phase of planning was defining basic requirements of the program.

In summary, planning in higher education is often by default and seldom comprehensive. Outside pressures to provide immediate services and the tidal wave of exploding enrollments place those responsible for making planning decisions in a virtually untenable position. Their own limited information and experience on the subject coupled with the requirement that a governing board or legislative body retains some final authority, which unfortunately in too many cases is misused, creates an unfavorable climate for rational, systematic, and successful planning.

Facilities Planning

The specific problem to which this project initially addressed itself is the planning of higher educational facilities. It is apparent that this aspect of planning cannot be considered separately and must be a component in the comprehensive planning matrix. Nevertheless, it is necessary to specifically review the state of the art in planning facilities.

Sim Van Der Ryn, Professor of Architecture at the University of California, Berkeley, after lengthy research on the subject, made the following penetrating comments:

> Buildings outlive people. American universities are spending about five billion dollars annually to build campuses that are disfunctional in many ways for their present inhabitants, and almost certainly, will be obsolete in the near future. I am not suggesting that we spend less on environments for higher education. We should spend more, more wisely, and in different ways. Compared to the billions in public funds being squandered on deadly or useless military hardware, the amount of money spent on creating environments for higher education is not large. However, the impact of these investments on the

> health of society is quite significant. Campuses are being constructed - and the University of California is no exception - that conform to outdated ideas about people, learning, and institutions. The University environment as it comes off the assembly line is most often an Edsel.
>
> For the generation of liberals who built the great state institutions in the past twenty years, the problem was how to create a planned educational system that would meet the needs of a growing technological society. Several things went wrong. The planning tools that the institution builders had were not up to the job. It has proved difficult, if not impossible, to create a master plan for organization and design that is sufficiently flexible and responsive to changing conditions. Events are overrunning the orderly visions of the institutional planners. Students are rejecting the welfare state dream of an educational environment completely planned and programmed for them. . .
>
> The design of most campuses begins with several realities. "Planning" in the bureaucratic sense means the manipulation some years in advance of people, dollars, and physical space. In order to manipulate these variables, they must of course be abstracted, quantified, and objectified. Despite fancy techniques of data processing and cost benefit analysis, the physical design of universities remains pretty much a process of fitting people and functions to predetermined spatial layouts. Like a housewife arranging furniture, presidents, chancellors, trustees, and their advisors go about the business of making everything fit.
>
> The tool for laying things out is the "Campus Development Plan." Most campus plans still reflect the dead hand of "city-beautiful planning" whose practitioners base the organization of complex functions on static pictorial criteria, unchanged since the Renaissance. Such plans, with their neatly colored maps and artists conceptions of grand vistas through the campus, are well suited to quick decisions by busy trustees unaccustomed to the rich diversity of activities on the real life campus.
>
> Many businessmen-trustees feel more at home with the concrete world of building decisions than with the more nebulous world of educational policy. . .[8]

Educational specifications are often the product of a highly generalized, sometimes nebulous statement of objectives. Unfortunately, in a painful number of instances, facilities are designed without adequate definition of the program, reference to the realities of implementation and operation, proper coordination between related functions, and sufficient recognition of some of the vital needs of faculty and students.

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[8] Sim Van Der Ryn, The University Environment - Present and Future, pp. 1-13.

Comprehensive planning should incorporate operations management and systems analysis to deal with these complex multivariate problems in their dynamic setting. Institutions of higher education need not be constituted of a series of badly-related activities surviving in spite of each other. They can instead be a highly integrated functional organism dedicated to evoking a certain kind and quality of response from the learner. When we finally envision the student as a "learner," rather than the recipient of an "education," every facility of the college or university will be considered vital and their interrelationships will be fully recognized. Effective planning is impossible unless sufficiently comprehensive to include all the major ingredients of the student's total experience. Ignoring these critical linkages results in the commitment of resources to archaic, inefficient and ineffective forms of education which often amplify the already aggravated problems of financing, educational relevance, student unrest and social disorganization.

Better planning and a humanistic approach to education are not mutually incompatible goals. In fact, the more successful we become in creating a learner-oriented environment, the better chance we have in "personalizing" it. A systematic analysis of the resources and alternatives available to any educational institution coupled with a realistic appraisal of its responsibilities to the community it serves should generate a series of options from which sound policy decisions may be made.

We have the technological ability to create any appropriate environment, but lack the necessary organizational skill to plan and program for it. In reflecting upon the state of architecture and engineering, James Theodores states that:

> . . . almost any desired environment can be created . . . In most cases, sufficient funds are available to construct this environment. The state of current practice . . . falls short of the state of the art.
>
> Indeed, the evidence is compelling. With marked exceptions, most school buildings now in use are destined for early obsolescence. Many were obsolete while still in the design stage. The fault lies not so much in the failure of the architectural and engineering professions--although there is a widespread and enduring tendency to imitate current styles in architecture--but in the inability of educators to define precisely the functions to be accomplished in the architecture. . .
>
> . . . Contemporary school buildings tend to perpetuate outdated instructional systems; moreover, they do not lend themselves readily to the introduction of new instructional systems.
>
> The current state of school building practice reflects upon the planning--or lack of it--that produces it. If there are to be substantive changes in school architecture, there first must

be substantive changes in the educational ideas and plans. School buildings reflect gross imbalances in the planning process; planners seem preoccupied by questions of shelter, savings, and accommodations for existing instructional programs. At the moment, we seem to know better how to enclose space than people. Very few people view planning as a blending of advanced ideas about education, environment, economy, and equalization of educational opportunity.[9]

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[9] James Theodorus, Crisis in Planning, p. 19.

Summary

From the quantitative standpoint, these problems are staggering. However, the resources and the will to solve them are present. Qualitatively, the greatest efforts of educators, administrators, architects, planners, and related consultants must be aggressively pooled and welded into an effective sharing of knowledge and skills if the fullest potentialities of this opportunity are to be realized.

The planning of facilities which are barely adequate or, as is often the case, immediately out of date, must be ended. Educational requirements are such that only carefully defined, far-sighted programs, aimed at coping with a vastly expanding spectrum of human needs and activities, can meet this challenge. To achieve this will require an environment that is sympathetic in character, stimulating in quality, functional in operation, and genuinely inspirational.

In this era of profound scientific and technological change, there are a number of compelling issues confronting colleges and universities:

1. Vastly expanded responsibilities.
2. Staggering increases in operating costs.
3. The need to free teachers from routine tasks, enabling them to give their full attention to more creative and productive contact with students.
4. The introduction to instruction of new forms of communication.

An examination of the philosophies and procedures which have influenced the design of the majority of existing facilities indicates that these considerations have not yet been fully recognized. In view of this, these questions may be asked: Will facilities planned for the future provide for predictable changes? Will these provisions be integrated creatively into an effective, dynamic, and humanistic environment?

In general, the picture is a gloomy one. Indications are that there is not nearly enough pertinent research and development being undertaken on a broad scale. What useful information is being generated is not being communicated in a manner which is meaningful or applicable to those most in need of help. Although there is some good planning in progress, examples are limited in number. Insufficient research has resulted in far too little attention being given to human environmental needs in higher educational facilities. It is universally recognized that learning is a complex process. However, educational and psychological research seem to have had little influence upon actual design. Instead, architectural and design solutions have been generally mechanistic. Consequently, facilities impose rigid and repressive forces upon the meaningful relationships of people as they attempt to teach and to learn.

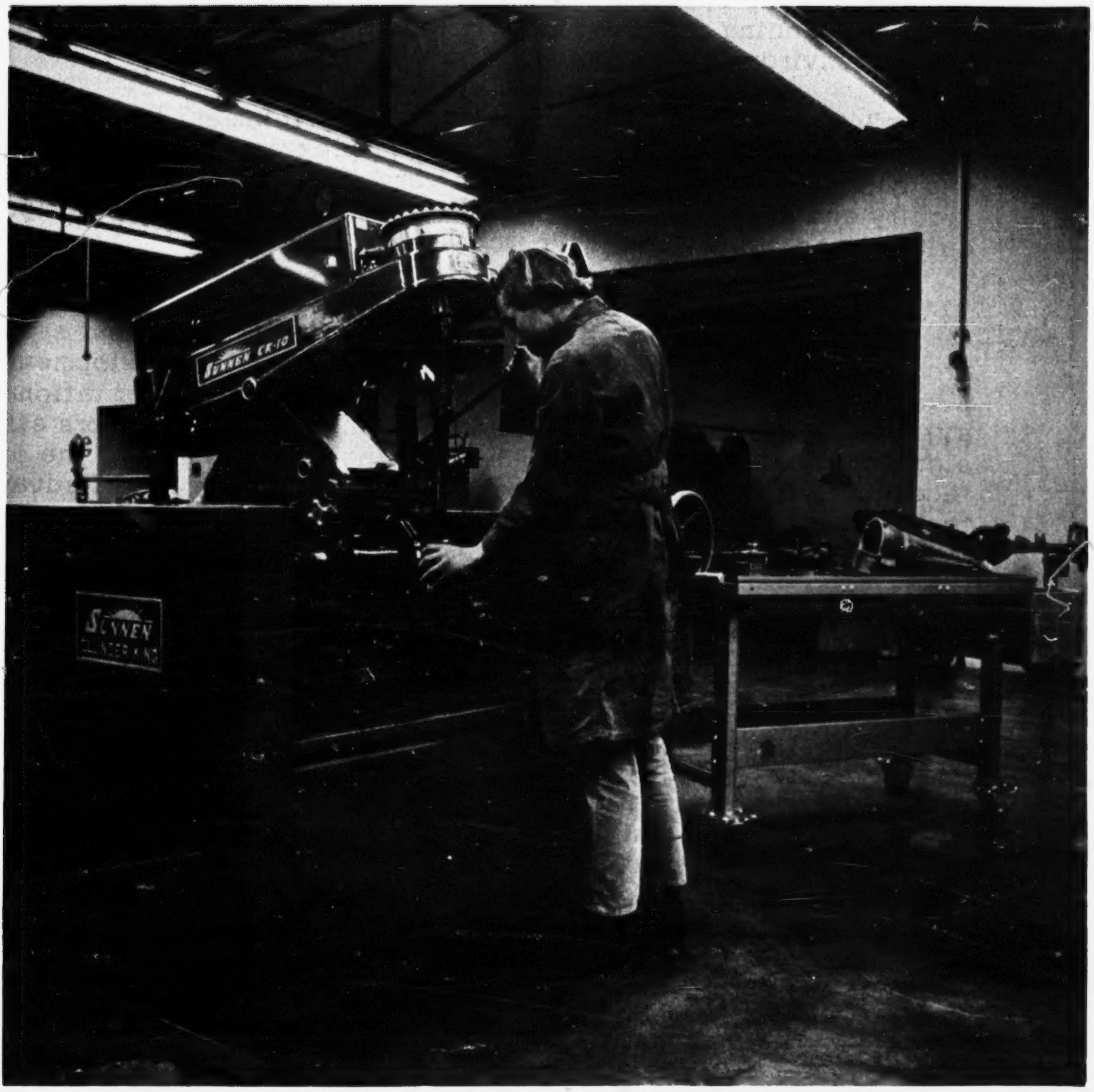
In addition to the technical aspects of campus planning, questions are being raised concerning environmental considerations which are more difficult to resolve. There is an increasing awareness of the fact that the explosive growth in enrollment, with its resulting campus congestion and loss of individual student identity, is contributing to widespread unrest and dissatisfaction. Existing institutions are searching for a means of coping with the problem of depersonalization and the sense of alienation. At meetings of educators, administrators, students, and alumni, discussions focus on this issue. Projected new institutions are searching for answers before committing the expenditure of large sums of money.

Established institutions with static campus patterns are faced with monumental problems, and the pressures of future growth tend only to exaggerate them. On the other hand, new campuses with a fresh start have the challenging opportunity of approaching objectively the related subjects of planning for new teaching techniques and creating an appropriate campus environment.

But what is an appropriate campus environment? In what specific ways can it be designed to meet the complex physical, emotional, social, and economic needs of students of varying ages and backgrounds, of faculty and administrators, and of citizens looking to the campus as a cultural and educational resource?

The resolution of these compelling questions cannot be arrived at through reliance upon traditional educational solutions and stylistic architectural design. A whole new approach to the development of design criteria and values must be identified. A method of rational and systematic evaluation of all the human and technical factors affecting design should be implemented. By utilizing this technique, the dual objectives of achieving greater efficiency through the use of advanced technology and providing for the needs of individuals may be realized and their apparent conflict resolved.

A number of new campuses and buildings demonstrate that these factors have not been adequately recognized. The result is that precious resources, both financial and human, have been committed with disappointing and, in some cases, tragic results. Surveying some of the nation's outstanding educational institutions reveals that facilities are often grossly inadequate. Architects are guided by physical parameters, usually expressed in a relationship of full-time equivalents (FTE) and square footage, or a standardized formulae adopted for highly specialized spaces. New facilities are being completed, embodying all of the latest advances in structural techniques, lighting, air conditioning, and boasting fresh contemporary styling . They are, however, from the day their doors open, sadly out of date, since they do not, in either their planning or technical provisions, take account of the revolution in communications techniques or the changes which are occurring in educational philosophy and needs. Further, in spite of their architecturally fashionable facades, they fail to reflect the fundamental humanistic characteristics which, in subtle but very meaningful ways, shape the quality of life for students, faculty, and administrators, and contribute immeasurably to the effectiveness of the entire educational experience.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CHAPTER II

PROCEDURE

Recognizing the problems identified in the previous chapter, a two-phase project was designed with the over-all objective of establishing a more coherent and rational process of planning and developing college and university facilities by integrating the fields of education, academic planning, environmental design, systems analysis, communications, and administrative management. The first phase was to observe the state of the art in higher educational planning and take inventory of the practices and resources in the field. In the second phase it was intended to apply these over-all objectives in the design of a new college, using the applicable data derived from the first phase.

This document is the report resulting from the completion of Phase One. In an effort to identify all the resources available to planners, the current literature was studied, a list of organizations, individuals and governmental agencies rendering service and assistance was compiled, and original data was collected concerning the process of planning. In order to effectively deal with the problem, the scope of the inquiry was limited to the planning and development of community colleges.

The community college was selected since it lends itself to thoughtful and innovative research. Community colleges are generally more autonomous, usually built as an entity with diversified facilities and requirements, and are in a era of enormous growth. Educational institutions of the future may well serve as the core of our society, and the community college may be a contemporary model of this concept.

A foremost community college authority, B. Lamar Johnson, states:

> The junior college, uniquely American and relatively young, with an active history of only two-thirds of a century, is. . . evidence of change in American education. Created initially to provide two years of university parallel work in the home communities of young people, it has expanded its role and functions to serve a variety of educational, social, and community needs.

Johnson indicates the incredible growth potential of community colleges in the immediate future:

> We are now engaged in national endeavors which within the next quarter-century, and perhaps sooner, will make junior college graduation as common as high school graduation is today. If current trends continue, we may anticipate a 90 percent college enrollment of youth 18 to 21 during the first decade of the twenty-first century.

In conformity with this projection, the most notable characteristic of the American junior college today--and this will continue for the foreseeable future--is its explosive growth. Twenty-five years ago, junior college enrollments totalled 300,000. In 1967-68, more than 1,650,000 students attended the junior colleges of our nation. These institutions may be growing up, but the end is nowhere in sight. National requirements for educated manpower in a technological society, supported by the democratic ideal of maximum development for every citizen, make crystal clear the enormous necessary expansion of our two-year college capability. In this connection Gleazer points out, "More than seventy new junior colleges opened in 1967. Almost 200 more are in the process of establishment. It is likely that in the next five years junior college enrollments will double and reach about 3 million and that as many as 75,000 additional faculty members will be needed."

For those unaware of the program of the public community colleges, as a brief generalization it may be stated that:

1) their principal task is to provide college parallel or transfer programs preparing students for upper division study at four-year institutions, and career or occupational/technical curricula, providing advanced post high school training in trades, specialties, and para-professional fields;

2) tuition is free or very low;

3) they have traditionally been "open-door" colleges, meaning that any high school graduate or individual over 18 years of age may be admitted:

4) guidance and counseling is considered an important responsibility, and by some educators, a major goal;

5) all students commute and there is no on-campus housing;

6) the colleges see themselves as serving their immediate communities and emphasize programs that have relevance to local educational and cultural needs.

According to Dr. Dale Tillery, of the University of California at Berkeley, community colleges will be the essential institution of the coming society. The evidence acquired in this study clearly validates that premise. This observation may appear obvious to many; however, community colleges have not yet even been established in any significant number in half of the states.

The survey of resources available to planners was oriented to community college needs although much of the information is useful in all areas of higher education. The survey focused upon current literature since much of what is relevant has appeared within recent years and earlier materials have already been catalogued. This data is presented in Chapter III. Original research was necessitated to identify the assistance from and participation of state agencies in community college planning, detailed findings of which are presented in the Appendix.

In seeking to gain an insight into the planning process, the major effort in this study was to determine how a sample of newly completed colleges, not selected at random, but representing a cross section of outstanding institutions, were developed. In order to accomplish this, all of the new community colleges built within approximately the last five years were listed. This comprised nearly one-hundred institutions from which colleges that in some manner had distinguished themselves or were recognized in the literature, were selected. The resulting list of twenty-five colleges was circulated to seventeen individuals who are unusually knowledgeable in the fields of higher education, community colleges, government and architecture for their confidential recommendations as to which would be the most valuable for study. They were asked to rate them in terms of total institutional success, facilities, and innovative achievement. Thirteen responses were received and from these recommendations and consideration of logistics and budget, a sample of fifteen was drawn.

DESCRIPTIVE DATA CONCERNING THE SAMPLE

Location	
Far West	8
Midwest	2
South	1
Northeast	4
Community	
Rural	2
Suburban	9
Urban (Central City)	4
Gross Enrollment	
Under 1500	2
1500-3000	3
3000-5000	6
Over 5000	4
Program	
Primarily Technical	2
Primarily Academic	4
About Equally Mixed	9
Primarily Daytime	7
Primarily Night	0
About Equally Mixed	8
Single College District	5
Multiple College District	10

With the assistance of a consultant, a structured interview was designed and the following items were selected for inquiry:

1. Communication: the quality of communication between users, decision makers, planners, architects, and the community.
2. Clarity of objectives: sufficiency of clarification and explanation of "what ought to be."
3. Coordination: sufficient time and an appropriate schedule to allow for coordination of the planning phases.
4. Transfer of concepts: reliability and continuity in the transference of concepts from phase to phase of the project.
5. Knowledge: comprehension of immediate needs and anticipation of future developments and technology.
6. Permissiveness: degree to which ultimate users were given "their way."
7. Participation: involvement of those who should participate in decision making.
8. Adequacy of resources: sufficiency of budget, degree of community and other support, and competence of staff.
9. Constraints
10. Difficulties: at which state of development did they occur? what were they?

Interviews were conducted with as many administrators, planners, teachers, and students as feasible at each college visited. In almost every instance the president of the college was interviewed. Most interviews were about an hour long, in some instances, much longer. In the interviews, non-directed, open-ended questions were posed in an attempt to identify how planning of the colleges actually occurred. The responses were classified according to the items outlined above. Primary emphasis was placed upon isolating factors which were believed to have influenced significant decisions. Interviewees were asked to recall factors which either enhanced or impeded the success of the college. Where feasible users, primarily teachers and students, were given the opportunity to evaluate the facilities. Their feelings on what seemed particularly satisfactory or unsatisfactory were solicited. Additional data was recorded concerning enrollment, costs, time required for planning, needs of the community, composition of the faculty and students, and special programs. Photographs, brochures, and catalogs were also collected.

All of these materials and the results of the interviews, plus the subjective evaluation of the interviewers were combined into individual profiles of each college, which are presented in Chapter IV.

It should be noted there was no attempt to establish statistical significance in the data but rather prepare a colorful and graphic representation of how and what occurred in what may be reasonably considered a number, if not the entire sample, of unusual new community colleges. Since this study deals with a basically social phenomena, it is recognized that all that may be recorded are the perceptions and subjective opinions of interviewees of events that occurred. It is obvious these statements are colored by the respondents' own needs and values. Nevertheless, as a preliminary effort, this study has found how, in the opinions of those involved, fifteen new and ostensibly exceptional colleges were planned and the subsequent evaluation of their planners and users.

From all of these efforts have come a series of premises that are presented in Chapter VI, the summary and conclusions of this study. There are obvious limitations resulting from this methodology. Reliance upon the perceptions, interpretations,and recollections of individuals involved in the planning process is obviously affected by a great many subjective factors. There is no "true history" of the events that actually transpired. A more intensive investigation of fewer institutions may have revealed in greater depth insights into their specific planning problems. However, it was the purpose in this phase only to make a preliminary survey and this resulted in the choice to attempt to recognize more general characteristics of successful planning by studying more institutions. Conclusions drawn about any one specific institution from the data may only be considered tentative. However, the general observations presented in Chapter IV and the conclusions drawn from them appear to have an inherent consistency with the observations of authorities in the field.

In the original conception of this phase of the project it was intended to consult a panel of four to five individuals experienced in the various aspects of educational and community college planning. An alternative method of validating and refining the findings subsequently presented itself. It was believed a more productive scheme may be to actually simulate the planning of a community college rather than to discuss it in the abstract. Thus from field investigation data, a hypothetical scenario was prepared and a group of planners were carefully selected, based upon what appeared from the findings should be considered "ideal." A review of the simulation and its results are presented in Chapter V. One additional finding of this study prompted the experiment with simulation. Widespread concern was expressed by many that there is a desperate shortage of qualified planners and no immediate way to prepare people for making planning decisions exists. Simulation seemed to offer an interesting method for preparing those individuals who are assigned this responsibility, and so the simulation conducted served as a means of testing this theory.

The basic objective of this project, preparing the necessary background materials for Phase Two has been successfully accomplished and is outlined in Chapter VI.

CHAPTER III

PLANNING RESOURCES

Educational planning has not yet developed to the point of being a distinct profession. The process of planning is viewed by most institutions as a one-time activity and, unless the institution is of sufficient size, it cannot afford a permanent planning staff. The recruiting of experienced educational planners is extremely difficult, since there is no formal program for preparation in this specific field. Those who have developed an expertise have generally done so through involvement in one or two actual projects, and then quite often by accident.

New institutions, in search of sources of aid and intent upon doing a good planning job, are compelled to raid the experienced staffs of other institutions. In a recent survey conducted by Cauffman, Wilkinson & Pepper, Architects & Planners, of Philadelphia, covering sixty-four colleges in the mid-Atlantic states, it was indicated that educational planning was done principally by the presidents and their immediate administrative staffs. A significant number indicated that they would have preferred to include the architect, selected faculty members, and outside consultants. Most said that their greatest problem was that of defining the basic requirements of their programs. The lack of qualified professional planners, combined with the pressing demand existing since World War II for educational facilities, has made it virtually impossible to carefully and thoughtfully define comprehensive objectives and long-range programs.

The nature of the political process in most states and the system of financing new programs has created a lag in the total educational capacity of the nation. When funds are made available, decision makers are more often than not forced by enrollment pressures and public demand to commit themselves almost immediately to programs and plans which will have far-reaching consequences. Virtually every new college in the nation has felt the pressure to plan on a "crash" basis.

In summary, planning in higher education is too often by default and seldom adequately comprehensive. Outside pressures for immediate services and the tidal wave of exploding enrollments place those responsible for making planning decisions in an untenable position. The lack of specific information and experience, coupled with the too-often crippling requirements set by various governing authorities, results in an unfavorable climate for rational and systematic planning.

THE AVAILABLE RESOURCES

The comprehensive nature of educational planning makes it impossible to identify one central body of knowledge and information within which research may be performed. The literature and resources which are both relevant and necessary to a well-developed planning program cover a wide spectrum. This chapter attempts to catalog useful current data, demonstrate the broad variety of informational materials, and suggest the types of related assistance which are currently available. The following is a general outline of these resources:

- A BIBLIOGRAPHY OF THE CURRENT LITERATURE
  - Community Colleges
  - Educational Technology and New Media
  - Facilities and Planning
  - General Information About Higher Education
  - Urban Colleges
- PERIODICALS
- ORGANIZATIONS AND AGENCIES
- PHILANTHROPIC FOUNDATIONS
- GOVERNMENT AGENCIES
  - Federal
  - State
- THE ARCHITECT
- CONSULTING SERVICES
- BUILDING SYSTEMS
- INDUSTRY

A BIBLIOGRAPHY OF THE CURRENT LITERATURE

Community Colleges

Blocker, Clyde E., R.H. Plummer, and R C. Richardson, Jr. *The Two-Year College: A Social Synthesis*. Englewood Cliffs, New York: Prentice Hall, Inc., 1965.

Brumbaugh, A.J. *Guidelines for the Establishment of Community Junior Colleges*. Atlanta, Georgia: Southern Regional Education Board, 1965.

States some philosophical assumptions underlying the Junior College Movement. Provides facts concerning the establishment.

Lists criteria to be considered: need, attitude of the community, adequate finances, space, accessibility, consideration of other institutions nearby, survey of community's needs.

Shows sources of financial support for two-year colleges.

Estimation of space requirements, kinds of needs and enrollment predictions are taken into account.

Burnett, C.W. (ed.). *The Community Junior College An Annotated Bibliography*. Columbus, Ohio: College of Education, Ohio State University, 1969.

Canar, Donald Arthur. "An Analysis of Ten Significant Forces Related to the Development and Organization of Junior Colleges," Unpublished dissertation, Northwestern University, 1963.

Chase, William W., *et al*. *Basic Planning Guide for Vocational and Technical Educational Facilities*. Washington: United States Government Printing Office, 1965.

Cohen, Arthur M. with Florence B. Brower. *Focus on Learning: Preparing Teachers for the Two-Year College*. (Junior College Leadership Program, Occasional Report No. 11). Los Angeles: University of California, 1968.

Evans, Noel D. "A Descriptive Study of the Status of Selected Junior College Physical Plants and How This Status Was Achieved," Unpublished dissertation, University of Nebraska, 1963.

A study to determine status of facilities of forty-nine two-year junior colleges (public) in a five-state area (Colorado, Iowa, Kansas, Minnesota and Nebraska.) None of the schools studied were established after 1941.

Garrison, Roger H. "Unique Problems of Junior Colleges," *National Education Association Journal*, 56:30-32, (November, 1967).

"It is (the community college) an institution whose time has come. It is a response to the country's aspiration that its citizens shall have open-ended educational opportunity. It is a utilitarian answer to the growing needs of a technical-industrial society. Like

most of our social institutions it will be called upon for ever-increasing services at the same time that it will be almost certainly endemically underfinanced, understaffed, and overpopulated."

Gleazer, Edmund J., Jr. (ed.). *American Junior Colleges*, Seventh Edition. Washington: American Council on Education, 1967.
The basic reference to all junior colleges in the United States.

Gleazer, Edmond J., Jr. "Facilities Outlook for Junior Colleges," *American School and University*, (February, 1967) p. 67.
There will be increased construction, a continuing need for innovation and experimentation in junior colleges, and a demand by the public for excellent planning.

Gleazer, Edmund J., Jr. *This is the Community College*. Boston: Houghton Mifflin Company, 1968.
See Bibliography; especially Occupational Education, Facilities, and works of General Interest.

Harlacher, Ervin L. *Effective Junior College Programs of Community Services: Rationale, Guidelines, Practices*. (Junior College Leadership Program, Occasional Report No. 12). Los Angeles: University of California, 1967.

Hirsch, Werner Z. and Morton J. Marcus. "Some Benefit-Cost Considerations of Universal Junior College Education," Institute of Government and Public Affairs, Reprint No. 21, Los Angeles: University of California, 1966. (Reprinted from *National Tax Journal*, XIX, No. 1, March, 1966).
Attempts to evaluate the anticipated results of a universal junior college program. Concludes that at this time there is not a clear-cut advantage for a universal junior college system, and that a transitional approach to post-secondary education would be a large-scale summer school program integrated into regular high school program.

Hughes, James M. *Probes: Community Colleges*. Investigation 14. Houston: Caudill, Rowlett and Scott, January, 1967.

Innovation - The American Junior College. Invitational National Seminar on the Experimental Junior College. Palo Alto, California: Science Research Associates, Inc., 1967.

Position papers, the results of a joint seminar co-sponsored by UCLA College Leadership Program and Science Research Associates, Inc. Purpose of the seminar was to "...advance the sound development of the experimental junior colleges.

There are two kinds of innovation: that which depends on the nature of a particular institution and the charisma of a teacher, and that which is publishable or transferable."

Johnson, B. Lamar. (ed.). The Experimental Junior College (Junior College Leadership Program, Occasional Report No. 12). Los Angeles: University of California, 1969. Proceedings of a Conference, July, 1967, on Innovation and Experimentation in Junior Colleges.

A series of essays by participants of a conference held at UCLA concerning innovation and experimentation in the junior college. Current innovative junior colleges are discussed as well as some predictions about the future.

Johnson, B. Lamar. Islands of Innovation Expanding. Beverly Hills: Glencoe Press, 1969.

A report on a survey of innovations in instruction at more than 226 American junior colleges.

Johnson, B. Lamar. Starting a Community Junior College. Washington: American Association of Junior Colleges, 1964.

A short but comprehensive aid for planners of community colleges The chapters are organized under the titles of: "Curriculum and Instruction," "Finance," "Plant and Facilities," and "Community Services and Relationships." There is a useful check-list in the concluding chapter covering all the above areas. The appendices provide good references concerning both the community colleges and planning.

The Junior Colleges: Twenty States. Articles on State Developments. Reprinted from the Junior College Journal. Washington: American Association of Junior Colleges, 1966.

Articles by planners about experiences in establishing community colleges in twenty states: Missouri, Maryland, Arizona, Oregon, Florida, North Carolina, Massachusetts, New Jersey, Washington, Michigan, Ohio, Alabama, Texas, Pennsylvania, California, New York, Illinois, Iowa, Hawaii, Minnesota.

The Junior and Community College. A Bibliography of Doctoral Dissertations, 1964-66. Washington: Educational Resources Information Center, Clearinghouse of Junior College Information and American Association of Junior Colleges, 1967.

Kintzer, Frederick C., Arthur M. Jansen, and John S. Hansen. The Multi-Institution Junior College District. Monograph Series. Washington: American Association of Junior Colleges and Educational Resources Information Center, 1969.

Lacy, Bill N. (ed.). Ten Designs - Community Colleges. Houston: Department of Architecture, Rice University, 1962.

Martorana, S.V. Standards for Two-Year Community Colleges Under the Program of the State University of New York. New York: University of New York, September 15, 1965. (Mimeographed).

"Unhampered by traditional attitudes, community colleges have

introduced interesting and new architecture, design and facilities."

"Masterplans for Ten Campuses," *College Management*, (September, 1968), 74-86.

Medsker, Leland L. "Changes in Junior Colleges and Technical Institutes," *Emerging Patterns in American Higher Education*, Logan Wilson, (ed.). Washington: American Council on Education, 1965, 79-84.

Medsker, Leland L. *The Junior College: Progress and Prospect*. New York: McGraw-Hill, 1960.

Morrison, D.G., Ken August Brunner, and S.V. Martorana. *The Two-Year Community College: An Annotated List of Unpublished Studies and* Surveys, 1957-1961, Bulletin, 1968, No. 28, Department of Health, Education and Welfare. Washington: United States Government Printing Office, 1968.

Morrison, D.G. and S.V. Martorana. *State Formulas for the Support of Public Two-Year Colleges*. United States Department of Health, Education and Welfare, Bulletin No. 14. Washington: United States Government Printing Office, 1962.

O'Connell, Thomas E. *Community Colleges: A President's View*. Urbana, Chicago, London: University of Illinois Press, 1968.
The greatest contribution of the community college is in "...adjusting our way of life to the scientific revolution..."

Ramstead, William K. Multicampus - Ready-Set-Go!" *Junior College Journal*, (April, 1969), 25-30.

Rarig, Emory W. (ed.). *The Community Junior College*. An Annotated Bibliography. Community College Studies. New York: Teachers College, Columbia University, 1966.
The Bibliography is divided into: Research Tools, History, Function of Community Junior Colleges, Community Junior College Personnel, Community Junior College Facilities, and Research in the Community Junior College.

Richardson, Richard C., Jr. *The Interim Campus: Starting New Community Junior Colleges*. Washington: American Association of Junior Colleges, 1968.
"One a week is a conservative estimate of the rate at which new community colleges are currently being created in the fifty states." Edmund J. Gleazer, Jr.
Part I of the book is a general description of interim campuses; for example, day and evening programs in leased facilities. Part II presents case studies of eight community colleges which started as interim campuses.

Rouche, John E. and John R. Boggs. *Junior College Institutional Research Research: The State of the Art*. Washington: Educational Resources Information Center Clearinghouse for Junior College Information and American Association of Junior Colleges, 1968.

Emphasizes the great need for institutional research in higher education and especially in every aspect of the two-year college. There is a review of current research in the junior colleges, and a criticism that current research is too often limited to areas already studied (transfer students) with rather consistent findings.

Selected Papers. From the Forty-Seventh Annual Convention, American Association of Junior Colleges. Washington: American Association of Junior Colleges, 1967.

The papers cover such topics about the junior college as: students, staff, curriculum for big city community colleges, teaching the special student, planning and occupational education. There are introductory speeches by Edward Joseph Sholeen, Jr., Philip M. Hauser and Wayne Morse.

Singer, Derek S. "Do We Need a Community College Institute?" *Junior College Journal*, 39:36-40,(October, 1968).

He proposes a special school to supplement present faculty training programs, a graduate institute run by the junior colleges.

Thornton, James W., Jr. *The Community Junior College*. (Second Edition). New York: John Wiley and Sons, Inc., 1960 and 1966.

A useful introduction to the Community Junior Colleges and some of the considerations in establishing one.

Educational Technology and New Media

A Basic Reference Shelf on Facilities for Instructional Media. A Series One Paper. Stanford: Educational Resources Information Center Clearinghouse on Educational Media and Technology at the Institute for Communication Research, Stanford University, 1968.

Bernardis, Amo De, *et al*. *Planning Schools for New Media*. Washington: United States Government Printing Office, 1961.

Bright, Louis R. "There's a Computer in Your Future," *American Education*, III, 10,(November, 1967).
Discusses regional approach to computers. They would perform routine administrative tasks, offer instructional support for computer job training, and give all students an opportunity to learn modern data processing techniques.

Brown, James W. and James W. Thornton, Jr. *New Media in Higher Education*. Washington: The Association for Higher Education and the Division of Audiovisual Instructional Service of the National Educational Association, 1963.
Critical descriptions of the use of new communications media in college and university teaching.

Caffrey, J. and C.J. Mosmann. *Computers on Campus*. Washington: American Council on Education, 1967.
An introductory analysis of problems and issues associated with computer applications in higher education.

Center for Architectural Research. *Educational Facilities With New Media*. (Three Volumes). Report A: A Guide to Policy Makers. Report B: A Guide for the Design Professions. Report C: A Technical Guide. Washington: Department of Audiovisual Instruction, National Education Association, 1965.

Center for Architectural Research. *New Space for Learning*. Troy, New York: Rensselaer Polytechnic Institute, 1966 (Revised).

Chapman, Dave. *Design for ETV Planning for Schools with Television*. New York: Educational Facilities Laboratories, Inc., 1968 (Revised).

Dubin, Robert and R.A. Hedley. *The Medium May Be Related to the Message*. Eugene, Oregon: Center for the Advanced Study of Educational Administration, University of Oregon, 1969.

"Educational Technology: The State of the Art in Higher Education," *College Management*,(October, 1968), 14-52.
Brief reports on many forms of new media and examples of applications.

Ellsworth, Ralph E. *Planning the College and University Library Building.* Boulder, Colorado: Pruett Press, Inc., 1968.
Discusses the effects of automation and electronics on planning, and also the relevance of other audiovisual media.

Facility Technology: Catalyst for Learning. Eleven Selected Presentations from the Forty-Fifth Annual Conference, 1968. Columbus Ohio: Council of Educational Facility Planners, 1969.
A series of papers including articles by Charles W. Brubaker on "Technology and Community College Facility Planning," and "Technology and its Potential for Educational Facilities Design," by Spencer B. Cone.

Feurzeig, Wallace. *Educational Potentials of Computer Technology.* Report No. 1672. Dayton, Ohio: Charles F. Kettering Foundation, 1968.

Jones, Robert C. "Multicampus Instructional Resources Services," *Junior College Journal*, 36:11-13,(March, 1966).

Licklider, J.C.R. *Libraries of the Future.* Cambridge, Massachusetts: MIT Press, 1969.
A discussion of the potentialities and limitations of computers for library use, and a summary of related current research projects.

New Building on Campus: Six Designs for a College Communications Center. New York: Educational Facilities Laboratories, Inc., 1963.
This is the result of an invitational competition for which six architectural firms submitted solutions for Rensselaer Polytechnic Institute, Troy, New York.

Oglesby, William B. "Basic Elements of an Instructional Resources Center," *American School and University*,(May, 1968), 59-60.
States "basic tenets" of administration of Instructional Resources Center.

Peluso, Anthony P. "An Answer for a Dime," *American Education*,(May, 1968), 28-29.
Discusses sharing of computer at Illinois Institute of Technology by fifty schools using terminals.

Reed, Blake L. "A Junior College's Technology Center," *College Management*, 3:30,(October, 1968).

Thornton, James W., Jr. and James W. Brown. *New Media and College Teaching.* Washington: The Association for Higher Education and the Division of Audiovisual Instructional Service of the National Educational Association, 1968.
Contains an inventory of some of the uses of new media in college instruction and critical descriptions on the ways they are being utilized, what they can accomplish, and some of the problems they have presented.

Tippets, J.W. *Feasibility Study and Long-Range Plan for Utilizing Instructional Media at UCSD*. San Diego: University of California, 1968. (Mimeographed).

Witherspoon, John P., *et al*. *Educational Communication Systems Phase III*. Final Report, U.S. Office of Education, Project No. 450-A Contract No. OE-5-16014. Washington: U.S. Office of Education, 1969.

Witherspoon, John P. *Educational Communications Systems, A Perspective*. Washington: National Association of Educational Broadcasters

Facilities and Planning

American Association of Junior Colleges and the American College Public Relations Association. *The Foundation and the Junior College*. Washington: American Association of Junior Colleges, 1965.

Architecture and the College. Presentations from the 1967 Conference. Urbana, Illinois: The Department of Architecture, University of Illinois, 1967.

Eighteen essays by participants in the conference, including information on: educational facilities with new media, library building planning, economics of campus construction, and the college of the future.

Bareither, Harlan C. and Jerry L. Schillinger. *University Space Planning*. Translating the Educational Program of a University into Physical Facility Requirements. Urbana, Chicago, London: University of Illinois Press, 1968.

Presents the "numeric" method of systematically deriving space requirements.

Beck, John Milton, Jr. "Educational Planning of School Plant Programs." Unpublished doctoral dissertation, The University of California, Berkeley, 1962.

Bricks and Mortarboards: A Report on College Planning and Building. New York: Educational Facilities Laboratories, Ind., 1964.

Brubaker, Charles William. "What's Happening to the Campus? How Facilities for Higher Education are Changing in Response to New Needs," *College and University Business*, 46:41-60, (January, 1969).

Describes ways that colleges are meeting old and new needs, under increasing pressures. Some examples are given of community center types, urban types, and also new kinds of buildings and building concepts.

Castaldi, Basil. *Creative Planning of Educational Facilities*. Chicago: Rand McNally and Co., 1969.

A textbook for students, planners and architects which translates psychological and educational needs into effective school facilities.

College Students Live Here. New York: Educational Facilities Laboratories, Inc., 1961.

A review of dormitory planning and programs.

D'Amico, Louis A. and William D. Brooks. *The Spatial Campus: A Planning Scheme*. Bloomington, Indiana: School of Education, Indiana University, 1968.

The introduction discusses campus planning in general. The book contains a bibliography covering 1950 to 1967 on facilities which covers administration, planning, architectural relations, finance, legislation, construction, expansion, utilization, parking, college-community relations and building description.

Deasy & Bolling, A.I.A. *Actions, Objectives and Concerns*. Human Parameters for Architectural Design. A Study for Californai State College at Los Angeles funded by Educational Facilities Laboratories, Inc., 1969.

Detroit Institute of Technology...Today, Tomorrow, and in the Generation Ahead. A Report to the President and the Board of Trustees of the Institute. Detroit: Detroit Institute of Technology, 1968.

A report by the Academy for Educational Development, Inc. which attempts to examine the present assets of the Detroit Institute of Technology and to create a year by year plan for future development until 1980. Useful for planning because of the kinds of questions asked: "What kind of a college or university should it be?" "What kind of people?" "How do we get there from here?" and the answers that result.

Development of Site Programs and Budgets and a Procedure for Establishing Quality Levels and the Control of Site Costs at the Campuses of the State University of New York. Albany, New York: State University Construction Fund, 1966.

Dober, Richard P. *Campus Planning*. New York: Reinhold Publishing Corporation, Book Division, 1963.

Historical review of campus planning and design.

Dober, Richard P. *The New Campus in Britain: Ideas of Consequence for the United States*. New York: Educational Facilities Laboratories, Inc., 1965.

Duke University - Caudill Rowlett Scott - Hewes Holz Williard. *Computer Aided Campus Planning for Colleges and Universities*. Interim Report. Durham, North Carolina: Educational Facilities Laboratories, Inc., 1967.

A study which attempts to show how the computer can be incorporated as a third "member" of the planning team, along with the administration and the consultants. There is a useful chart (Figure 3) which defines the planning process step by step.

Educational Park - A Case Study Based on Planning and Design for Anniston, Alabama. CRS Investigation No. 16. Houston, Texas: Caudill Rowlett Scott, 1968.

Although the report contains specific recommendations for Anniston, it also contains master planning guidelines and general statements concerning educational parks.

Educational Resources Information Center at Stanford University. *A Basic Reference Shelf on Facilities for Instructional Media*. School Planning Laboratory. Stanford California: Stanford University, 1968.

Facility Technology, Catalyst for Learning. Columbus, Ohio: Council of Educational Facility Planners, 1969.

Farmer, Margaret and Ruth Weinstock. *Schools Without Walls*. New York: Educational Facilities Laboratories, Inc., 1965.
A discussion of "open-space" schools for flexibility in teaching as opposed to traditional classrooms. Also covered are some of the special problems that are confronted by these schools, such as scheduling, partitioning, and the use of audio-visual equipment.

Gibson, Charles. "How Flexible is Your New Building?" *College Management*, (January, 1969), 48-49.
Gibson developed a flexibility rating system to help determine how flexible new campus buildings are. The major building elements are spatial, thermal, visual and acoustical environment. These items are applied to old or proposed buildings to determine the degree of flexibility measured by certain criteria.

Gordon, T.J. and Olaf Helmer. *Report on a Long-Range Forecasting Study*. P-2982. Santa Monica, California: The Rand Corporation, 1964.
A study about prediction-making, as it affects current planning decisions. An attempt to explore the "basis, the accuracy, and the means for improving such long-term forecasts..." using the Delphi Method.

A Guide for Campus Planning. Albany, New York: State University Construction Fund and State University of New York, 1967.

Guide for Planning Community College Facilities. New Brunswick, New Jersey: Rutgers University Press, 1964.
A kit for planning community college facilities to be used with the Rutgers Checklist.

Hall, Edward, *The Hidden Dimension*. Garden City, New York: Doubleday, 1966.
An anthropologist examines the relationship between environment and human behavior. "Everything man is and does is associated with space: the hidden dimension."

Hauf, Harold, Wayne Koppes, Alan Green, Morton Gassman, and David Haviland. *New Spaces for Learning: Designing College Facilities to Utilize Instructional Aids and Media*. (rev.) Troy, New York: Center for Architectural Research, Renssalaer Polytechnic Institute, 1966.
May be obtained from Educational Facilities Laboratories, Inc., 477 Madison Avenue, New York, New York 10022.

Helmer, Olaf. The Delphi Method for Systematizing Judgments about the Future. Los Angeles: University of California, 1966.
An interesting technique that may be useful in the early stages of planning.

Hirsch, Werner Z. Planning Education Today for Tomorrow. Reprint No. 28. Los Angeles: The Institute of Government and Public Affairs, University of California, Los Angeles, 1966.

Hull, Wesley F. "A Physical Education Complex - California Style," American School and University,(May, 1968), 82-85.
Describes the physical education complex at the College of Marin.

Interior Finishes/Floors, Walls, Ceilings. Albany, New York: State University Construction Fund, State University of New York, 1968.

Interior Furnishings Guide. Albany, New York: State University Construction Fund, 1966.

Jamrich, John X. To Build or Not to Build. A Report on the Utilization and Planning of Instructional Facilities in Small Colleges. New York: Educational Facilities Laboratories, Inc., 1962.
The report is broken into four chapters: "The Planning Process," "Institutional and Physical Characteristics of Small Colleges," "Utilization of Instructional Space," and "Improving Utilization." Includes very useful system for measuring potential utilization of facilities.

Judy, Richard W., and Jack B. Levine. A New Tool for Educational Administrators -- Educational Efficiency through Simulation Analysis. Toronto: University of Toronto Press, 1965.
Explains why the use of simulation models over mathematical models in planning may be more advantageous. "They can incorporate a degree of detail whichcannot be done with mathematical models.

Koenig, Koenig & Zemach. A Systems Approach to Higher Education. East Lansing, Michigan: Michigan State University, 1967. National Science Foundation Project.

Komoski, K. Development of a System for an Educational Products Information Exchange: Final Report. Educational Products Exchange Institute, New York, New York, November, 1967. (ED 020 566).

Koski, Robert W. Some Experiences with Computer Applications to Campus Planning. Remarks to Association for Institutional Research, 1968 Annual Forum. May 8, 1968. (Mimeographed).

Laboratory Equipment Criteria. Albany, New York: State University Construction Fund, State University of New York, 1968.

Larke, George R. (ed.). *Challenges in Planning for Tomorrow*. Report of a Conference. California School Facilities Council. Los Angeles: Chancellor's Planning Office, University of California, 1966.

Making Facilities Accessible to the Physically Handicapped. Albany, New York: State University Construction Fund, 1967.

Mayer, Frederick W. (ed.). *Contrasting Concepts in Campus Planning*. Ann Arbor, Michigan: Society for College and University Planning, The University of Michigan, 1966.

McCutcheon, Stephen C. "Seven Ways to Distinguish Comprehensive Planning from other Institutional Management Functions," *College and University Business*,(February, 1969), 42-46.

Institutional plannins is a way of systematically designing "change measures" by integrating the educational, physical facilities, and financial components.

Medsker, Leland L. "Resources for Planning," Long-Range Planning in Higher Education, *Proceedings of a Conference Sponsored by Western Interstate Commission for Higher Education and the Center for the Study of Higher Education*, Berkeley, California, 1964.

Meier, Robert C. "Development of a Computer Program for use in the Analysis of Future Land, Building, and Staff Requirements in Institutions of Higher Learning." Unpublished paper, Project No. 5-8414, Office of Education, U.S. Department of Health, Education and Welfare, University of Washington, Seattle, 1967.

Merlo, Frank P. *A Checklist of Planning Community College Facilities*. New Brunswick, New Jersey: Rutgers University Press, 1964.

Merlo, Frank. "A Guide for Developing Comprehensive Community College Facilities," An unpublished dissertation. Rutgers, The State University, New Brunswick, New Jersey, 1964.

Attempts to build a set of actual physical standards to be used for all community colleges.

"It seems that if a supportable guide were to be developed, there cannot be explicit standards. The only alternative is a step-by-step process to ascertain the exact physical characteristics of any college by including questions for consideration that can be used to answer the planned needs of any comprehensive community college physical plant." What Merlo has come up with then is a large checklist which can be used to stimulate the planners during the process.

Merlo, Frank P. and W. Donald Walling. *Guide for Planning Community College Facilities*. Community College Facilities Project, Division of Field Studies and Research, Graduate School of Education. New Brunswick, New Jersey: Rutgers - The State University, 1964.

The Midwest Technical Education Center and The American Association of Junior Colleges. *Emphasis: Occupational Education in the Two-Year College*. Washington: American Association of Junior Colleges, 1966.

Address and recommendations presented at a conference sponsored by the Midwest Technical Education Center and the AAJC in St. Louis, Missouri, May 12-14, 1966.

Morrison, D. Grant, *A Guide for Planning Community Junior College Facilities*. Washington: U.S. Office of Education, June, 1969. Government Printing Office 5.257:57007.

Myrick, Richard. "School Facility Planning," *Educational Technology*, December 15, 1968), 20-21.

A report of the annual meeting of the Council of Educational Facility Planners. It delineates major areas of interest: financial and political problems in getting new facilities constructed; dissemination of information between educators and industry; making facilities more human; site problems.

"Executives in our schools and colleges and universities are now facing critical problems of planning that are more difficult than ever before in educational history. A new science of institutional management is now in the offing."

National Council for School house Construction. *Guide for Planning School Plants*. East Lansing, Michigan: Michigan State University, 1964.

National Council on Schoolhouse Construction. *Planning Facilities for Higher Education*. East Lansing, Michigan: Michigan State University, 1960.

On Using and Being a Consultant. Washington: American Association of Junior Colleges, 1967.

An excellent outline of how to establish a sound relationship with a consultant. Sections include: "On Using a Consultant," "On Being a Consultant," "Budgets for Consulting Services," "Evaluation of Consultation Services," and "Consulting Fees."

PACE/ERIC. *Pacesetters in Innovation*, Fiscal Year 1967. U.S. Department of Health, Education and Welfare, Office of Education. Washington: Government Printing Office OE-20103-67.

A listing of resumes of the Projects to Advance Creativity in Education.

Parker, Floyd G. and Max S. Smith (ed.). *Planning Community Junior College Facilities: A Look Into the Twenty-first Century*. Proceedings of a Conference. East Lansing, Michigan: Michigan State University and the Council of Educational Facility Planners, 1968.

A collection of seventeen articles by people prominent in the field of community colleges, including articles by Harold B. Gores,

Ray L. Birdwhistell, Bob H. Reed, and C. William Brubaker.

Birdwhistell states, "In my opinion, education is centrally important to the future of the world, including America. As such it deserves the best planning that art, science and an informed citizenry can give to it. I am not convinced that it has had such planning or that such planning will be easily achievable.

Pena, William M. and Leroy V. Good. "Architectural Programming," Junior College Journal, (October, 1967), 34-37.

Pfeiffer, John. New Look at Education. Systems Analysis in our Schools and Colleges. New York: Odyssey Press, 1968.

Covers the history of systems analysis, relating the systems approach to everyday school problems. An excellent summary of the subject.

Planners and Planning. Stanford, California: Stanford University, School of Education, 1966.

Discusses planning new facilities. Defines the functions of the community college and the general problems of planning and creating a master plan. Suggests that the planning team be made up of President, Planner, other administrative officers, Academic Dean, Business Manager, Librarian, Dean of Students, Faculty (Division Chairmen), and the Architect. Also gives useful information about site selection and campus development.

"The community college seems ideally suited to use tradition-breaking devices since its own traditions and its own identity have yet to crystallize. Hopefull, this crystallization will accommodate the new, the more efficient, and the more effective." (from the Conclusion by Lewis B. Mayhew).

Planning College Union Facilities for Multiple Use. New York: Educational Facilities Laboratories, Inc., 1966.

"Planning the Community College," College and University Business, (October, 1967).

Portugal, Eugene Jay. Space Adequacy Determinations for Junior Colleges. Berkeley, California: University of California at Berkeley, 1962.

General guidelines for getting started. Reprints of ten articles on facilities planning from the Junior College Journal covering such topics as the architect's role in the planning process, the making up of the planning team, and the role of the educator in the planning process.

Reed, Bob B. and William A. Harper. The College Facilities Thing. Impressions of an Airbourne Seminar and a Guide for Junior College Planners. Washington: The American Association of Junior Colleges, 1968.

Participants visited nineteen schools. Each is briefly reviewed.

Relocatable School Facilities. New York: Educational Facilities Laboratories, Inc., 1964.
Critical analysis of how they are working out, why use them, kind currently in use, calculation of costs, case studies, and new developments.

SCSD: The Project and the Schools. (*also* SCSD - An Interim Report). New York: Educational Facilities Laboratories, Inc.,
The application of the building systems concept to the design and construction of an elementary school building.

Schneider, Raymond, Carl El Wilsey and SPL Staff. *School Site Selection - A Guide*. Studies sponsored by the Western Regional Center, Educational Facilities Laboratories, Inc. Report Number Five. Stanford: School Planning Laboratory, School of Education, Stanford University, 1961.
A two-part document: "Factors Affecting School Sites" and "A Guide for School Site Selection."

Shaping Schools to Change. A Report on the Summer 1966 School Building Institute from the School Planning Laboratory at Stanford University. Stanford: School Planning Laboratory, 1966.
"Planning for schools must be made an orderly, persistent process, coordinated by persons with highly individualized training for the job." Demographers, computer programmers and systems people should carry out planning functions.

Smith, Robert G. *College and University Planning*. Report on a Joint Study by Colgate University and American Foundation for Management Research. Hamilton, New York: Cogate University, January, 1969. (Mimeographed).
This outlines a planning program developed for Colgate University.

Sofokidis, Jeannette H. "The Instant Campus," *American Education*, 3:15-19,(September, 1967).

Tadlock, Max and George Ebey. "'Pound-wise' Planning," *Junior College Journal*, (November, 1967), 27-31.
The architect often has to do educational as well as facility planning because schools fail to provide an educational planning team.

Theodores, James L. and Associates. *Crisis in Planning*. Columbus, Ohio: Council of Educational Facility Planners, 1968.
An analysis of some factors that influence the kinds of schools we have, how they occurred, and what must be done to change them.

Tonigan, Richard F. "Emphasis on the Educational Environment," American School and University, (February, 1967), 60-61.
Expresses concern for beautiful but safe buildings. There is a dearth of qualified educational facility planners. No school offers a doctoral program in this field.

Total Energy. A Technical Report from Educational Facilities Laboratories. New York: Educational Facilities Laboratories, Inc., 1967.
A report about on-site power generation for cooling, heating, light and power. May be very useful in rural areas.

University Facilities Research Center. Horizontal and Vertical Circulation in University Instructional and Research Buildings. Madison, Wisconsin: University of Wisconsin, November, 1961.

Van der Ryn, Sim. "The University Environment - Present and Future," Unpublished Paper, School of Architecture, University of California, Berkeley, (no date).

Van der Ryn, Sim and Murray Silverstein, Dorms at Berkeley - An Environmental Analysis. Berkeley: The Center for Planning and Development Research, University of California, Berkeley, 1967.
An excellent example of applying research techniques from the social sciences to analysis and planning of university facilities.

Wakefield, Howard E. Construction Costs of Educational Facilities. Madison, Wisconsin: ERIC Clearninghouse of Educational Facilities, University of Wisconsin, 1968.
An annotated reference list.

Wakefield, Howard E. The Design and Construction of Libraries and Study Facilities. Madison, Wisconsin: ERIC Clearinghouse on Educational Facilities, University of Wisconsin, 1968.
An annotated reference list.

Wakefield, Howard E. Evaluating Educational Facilities. Madison, Wisconsin: ERIC/CEF, Educational Resources Information Center/Clearinghouse on Educational Facilities, University of Wisconsin, 1968.
An annotated reference list.

Wakefield, Howard E. Flexible Educational Facilities. Madison, Wisconsin: ERIC Clearinghouse of Educational Facilities, University of Wisconsin, 1968.
An annotated reference list.

Ward, Richard F. and Theodore E. Kurz. The Commuting Student. Detroit: Geology Department, Wayne State University, 1969.
A study of Wayne State University facilities which demonstrates a great need for changes in American colleges to accommodate the student who lives off-campus.

Western Interstate Commission for Higher Education. Compatible Management Information Systems. Boulder, Colorado: WICHE, University East Campus, 1969.
A series of technical reports concerning the concepts underlying compatibility in the WICHE Management Information Systems Program.

'What Went Wrong?' Maintenance and Operation Errors to Avoid in Educational Facility Planning. Columbus, Ohio: Council of Educational Facility Planners, 1968.
Discusses the components of new buildings on campus, pinpointing problems that typically occur due to inadequate planning. Information is included in Appendix A about organizations to be consulted for information and assistance. Appendix B lists additional sources and pertinent periodicals.

Wheeler, Lawrence. Behavioral Research for Architectural Planning and Design. Terre Haute, Indiana: Ewing Miller Associates, 1967.
An attempt to evaluate human factors affecting the design of college residence halls.

Widdall, Kenneth R. (ed.). Selected References for Planning Higher Education Facilities. Columbus, Ohio: Council of Educational Facility Planners, 1968.
This bibliography includes:
1. Orientation to Educational Facilities Planning
2. Developing a Master Plan for Plant Expansion
3. Planning the Indivudual School
4. Planning the Technical Aspects
5. Administering the Plant Expansion Program

A Window to the Future. A Coast-to-Coast Tour of Twelve Colleges by the 1964 Airborne Institute for Community College Planning. Stanford, California: School Planning Laboratory, School of Education, Stanford University, 1964.

Wood, William P. "Sidestepping Those Building Blunders," College Management, III, 12, (December, 1968), 34-35.

Zizman, S.B. and Catherine Powell. New Campuses for Old: A Case Study of Four Colleges that Moved. New York: Educational Facilities Laboratories, Inc.,

General Information About Higher Education

Adelson, Alkin, Carey and Others. "Innovation in Education," The American Behavioral Scientist, (March, 1967), (A Reprint).

A report of the Institute of Government and Public Affairs at UCLA. It is in three parts: "The Readiness for Change," "A Thumbnail Profile of American Education," and "The Education Innovation Study." The study was by a "multidisciplinary group to generate some useful perspectives on thinkable changes in American education."

American Council on Education. The Future Academic Community: Permanence and Change. Washington: American Council on Education, 1968.

Axelrod, Joseph. "An Experimental College Model," The Educational Record, (Fall, 1967).

Bauer, Raymond A. Social Indicators. Cambridge, Massacusetts and London: The M.I.T. Press, 1966.

Discusses the need for planning indicators to take into account the widest possible spectrum of effects; the secondary effects of technological advances.

Bowen, Howard R. The Finance of Higher Education. Berkeley, California; Carnegie Commission on Higher Education, 1968.

Delineates three broad areas of financial support: The Finance of Students, Institutions, and Tuitions. The author attempts to outline an evolving plan for implementing financial support in these areas.

Brumbaugh, A.J. Research Designed to Improve Institutions of Higher Learning. Washington: The American Council on Education, 1960.

Covers research in all areas of higher education. Presents examples of some college institutional research programs.

Caudill, William Wayne. In Education the Most Important Number is One. Investigation Number 11. Second Printing, August, 1967. Houston, Texas: Caudill, Rowlett & Scott, 1967.

Clark, Burton R. "Economy, Change, and Renewal," H.R. Ziel, (ed.), Education and Productive Society. Toronto: W.J. Gage, 1965.

Dubin, Robert and Thomas C. Traveggia. The Teaching-Learning Paradox: A Comparative Analysis of College Teaching Methods. Eugene, Oregon: University of Oregon Press, 1969.

This study, done at the Center for the Advanced Study of Educational Administration, indicates that there are no differences in the superiority of different college teaching methods.

"The results of this research are clear and unequivocal -- no particular method of teaching is measurably to be preferred over another when evaluated by student examination on performances."

Dubin, Robert and Thomas C. Taveggia. *The Teaching-Learning Paradox: A Comparative Analysis of College Teaching Methods*. Eugene, Oregon: University of Oregon Press, 1969.

This study, done at the Center for the Advanced Study of Educational Administration, indicates that there are no differences in the superiority of different college teaching methods.

"The results of this research are clear and unequivocal--no particular method of teaching is measurably to be preferred over another when evaluated by student examination on performances." p. 31.

Emphasis: Occupational Education in the Two-Year College. Addresses and recommendations presented at a conference jointly sponsored by the Midwest Technical Education Center and the AAJC, May 12-14, 1966. Washington: American Association of Junior Colleges, 1966.

Four articles about Society, Educational Administration, Curriculum and Instruction, and Student Personnel Services as they relate to occupational education.

Eurich, Alvin C. (ed.). *Campus 1980*. New York: Delacorte Press, 1968.

An excellent series of essays by distinguished people in the field about education and how it will relate to specific areas in the future. Some of the topics covered include "Higher Education and the National Interest," by Logan Wilson, "The Community College in 1980," by Joseph Cosand, "The Future Undergraduate Curriculum," by Lewis B. Mayhew, and "Conservatism, Dynamism, and the Changing University," by Clark Kerr.

Eurich, Alvin C. *Reforming American Education: The Innovative Approach to Improving our Schools and Colleges*. New York: Harper & Row, 1969.

A discussion and evaluation of various institutional "innovations" with a goal of formulating a public policy which will foster experiment and radical change.

Haefele, John W. *Creativity and Innovation*. New York: Reinhold Publishing Co., 1962.

Harris, Seymour, Kenneth M. Deitch and Alan Levensohn. (ed.). *Challenge and Change in American Education*. Berkeley, California: McCutchan Publishing Corp., 1965.

An excellent discussion of pertinent issues in education today and the future by prominent people in the field.

Heckman and Martin. *Inventory of Current Research on Higher Education*. New York: McGraw Hill, 1968.

Higgins, E. Eugene. College & University Facilities Survey, Part 3 Washington: U.S. Department of Health, Education & Welfare, U.S. Government Printing Office

Hirsch, Werner Z. and Morton J. Marcus. Intercommunity Spillovers and the Provision of Public Education. MR-121. Los Angeles: The Institute of Government and Public Affairs, University of California at Los Angeles, 1969.
A study on program budgeting for local governments.

Hirsch, Werner Z. and Colleagues. Inventing Education for the Future. San Francisco: Chandler Publishing Company, 1967.
Hirsch is Director of the UCLA Institute of Government and Public Affairs. This book is the result of the Educational Innovations Seminar in 1965-66 which brought people from various disciplines together to discuss these problems.

Innovation in Education: New Directions for the American School. New York: Committee for Economic Development, 1968-69.
Discusses problems of American schools, costs and benefits, goals and opportunites.

Kerr, Clark. New Challenges to the College & University. Berkeley, California: Carnegie Commission on Higher Education, 1969.

Martin, Warren B. Alternative to Irrelevance: A Strategy for Reform in Higher Education. Nashville: Abingdon Press, 1968.
"An examination of the need for alternative institutional models and of the cluster college concept as a way to achieve substantive diversity in organizational arrangements and educational values at American colleges and universities."

Martin, Warren B. "The Problems of Size--Small Size," Journal of Higher Education, (March, 1967).

Mayhew, Lewis. Colleges Today & Tomorrow. San Francisco: Jossey Bass, 1969.

Minter, John W. (ed.). The Individual and the System. Boulder, Colorado: Western Interstate Commission for Higher Education, 1967.
A series of essays pertaining to personalizing higher education.

Morphet, Edgar L. and Charles O. Ryan. Designing Education for the Future (Vols. 1-3). New York: Citation Press,1967.
The volumes are entitled: "Prospective Changes in Society by 1980," "Implications for Education of Prospective Changes in Society," and "Planning and Effecting Needed Changes in Education." Sponsored by eight western states and the Federal Government. Contains 45 essays by a nation-wide array of educators.

O'Toole, John F., Jr. *Education in the 1980's: An Overview*. SP-3072. Santa Monica, California: Systems Development Corporation, 1968.

Presents suggestions by Systems Development Corporation, as one of the pilot educational policy research centers established by the Office of Education concerning future education. Gives ten prospective new roles in education, i.e., "Simulation and Game Designers and Operators," Community Education Coordinators," and "Learning Process Facilitators."

"Our education system is simultaneously faced with increasing enrollments, rising costs, public discontent, and totally new educational technologies. It is clear that we need new kinds of information, deeper insights, and more sophisticated techniques to deal with the emerging complex interfaces between education and society." p. 1.

Patterson, F. and C.R. Longsworth. *The Making of a College*. Cambridge, Massachusetts: M.I.T. Press, 1966.

Randall, Ronald and Charles Blaschke. "Educational Technology: Economics, Management and Public Policy," *Educational Technology*, (June 30, 1968), 5-13.

Rogers, Carl. *Freedom to Learn*. Columbus, Ohio: Merrill, 1969.

Rourke, Francis and Glenn Brooks. *The Managerial Revolution in Higher Education*. Baltimore: Johns Hopkins University, 1966.

Schultz, Theodore W. *Resources for Higher Education: An Economist's View*. Berkeley: Carnegie Commission on Higher Education, 1969.

Siegel, Laurence. "The Contributions and Implications of Recent Research Related to Improved Teaching and Learning," *Learning and the Professors*, Milton, O. and E.J. Shoben. Athens, Ohio: Ohio University Press, 1968.

Previous studies show that it does not make any difference how students are taught--be it by conventional instruction or large group instruction. This author says that it does make a difference how we teach and are taught. He talks about the "Instructional Gesalt as a conceptual viewpoint ..."

Stern, George G. *Studies of College Environments*. Cooperative Research Project No. 378. Syracuse, New York: Syracuse University, 1966.

Describes college environments and attempts to develop new criteria for evaluating them. Also attempts to formulate a model which would tell about student attributes and institutional excellence and understand how these relationships, i.e., individual and the environment, can be "applied in order to promote effective education." (p. 7, Chapter II).

Swanson, Arden S. *A Financial Analysis of Current Operations of Colleges & Universities*. Ann Arbor, Michigan: University of Michigan, 1966.

Taylor, Harold. Students Without Teachers - *The Crisis in the University*. New York: McGraw Hill, 1969.
A provacative discussion of the need for dramatic change in higher education.

Toynbee, Arnold J. *Higher Education in a Time of Accelerating Change*. Paper No. 3. New York and Washington: Academy for Educational Development, 1968.
A brief history of higher education and how it served needs of previous societies, which leads to the discussion of higher education today. "The pupil should transform himself into a self-teacher, and the teacher should transform himself first into a stimulator and then a consultant." p. 10.

Venn, Grant. *Man, Education and Work*. Post-Secondary Vocational and Technical Education. Washington: American Council on Education, 1964.
A history of vocational education starting with the Morrill Act of 1862, and a review of legislation relating to vocational and technical education. Discusses urgent needs due to changes in technology.

Williams, Harry. *Planning for Effective Resource Allocation in Universities*. Washington: American Council on Education, 1966.
Discusses the problems of university budgeting, the budget process, and presents a proposal for program budgeting. There are samples of different budget formats.

Wilson, Logan. (ed.). *Emerging Patterns in American Higher Education*. Washington: American Council on Education, 1964.

Wolk, Ronald A. *Alternative Methods of Federal Funding for Higher Education*. Berkeley, California: Carnegie Commission on Higher Education, 1968.

Urban Colleges

Carioti, Frank V. *A College Grows in the Inner-City*. New York: Educational Facilities Laboratories, Inc.

The Challenge of Achievement. A Report on Public and Private Education in California to the Joint Committee on Higher Education of the California Legislature, January, 1969.

Recommends a unified and tuition-free system of education for California, which by 1976 would have jurisdiction over some 1.3 million students. Also recommends more college and university facilities be located in urban core areas and lowering of academic requirements for entrance into the schools to enable more "disadvantaged" young people to enter.

Community College Planning Center. *Community Colleges in Urban Settings*. Standord, California: School of Education, Standord University, 1964.

Results of a two-day work conference at the Community College Planning Center. Argues for the establishment of community colleges in urban areas. Points out the importance of urban life in the U.S. today and how the community college should become a creative and productive part of that life.

Creativity in Urban Education. Chicago: The Research Council of the Great Cities Program for School Improvement, December, 1968.

A survey report of locally developed materials, programs, and projects in sixteen cities.

Dobbins, Charles G. (ed.). *The University, The City, and Urban Renewal*. Washington: American Council on Education, 1963.

Report of a regional conference in Philadelphia.

Educational Facilities Laboratories, Inc. *A College in the City: An Alternative*. New York: EFL, 1969.

Explores the integration of educational facilities into the Bedford-Stuyvesant area of New York City.

Goodfriend, Harvey J. and Robert Mosher. *Centre City Community College, A Simulation*. San Diego: San Diego State College, 1969.

Papers prepared for the simulated planning of a new urban community college. Further details appear elsewhere in this report.

"Harper-Drake Associates Design a Junior College to Help Un-blight an Urban Area," *College and University Business*, (November, 1968), 17-20.

Jensen, A.M. "Urban Community Colleges Go Multicampus: A Survey of Ten Urban Multicampus Districts Reveals Some New Trends and Trouble Spots," *Junior College Journal*, (November, 1965), 8-13.

The study sought to discover why there are multicampus junior colleges, the types of organization used in the multicampus junior college districts, and identify their policies and practices.

"The Urban Crisis...What Can Alumni Do About It??" *Alma Mater*, Number 29. Journal of the American Alumni Council, (December, 1968).

A series of essays, discussions, statements about the Urban Crisis and Education by John W. Gardner, Jacques Barzun, Clark Kerr, Margaret Mead and others.

Weidenthal, Bud. *The Community College Commitment to the Inner City*. Washington: American Association of Junior Colleges, 1967.

Notes from a conference attended by authorities in the field.

Weinstock, Ruth. *Space and Dollars: An Urban University Expands*. New York: Educational Facilities Laboratories, Inc.

ORGANIZATIONS & AGENCIES

The following is a partial list of a variety of organizations that are in some manner concerned with planning in higher education:

Academy for Educational Development, Inc.
1424 Sixteenth Street, NW
Washington, D.C. 20036

American Association of Junior Colleges
1315 Sixteenth Street, NW
Washington, D.C. 20036

American Council on Education
1785 Massachusetts Avenue, NW
Washington, D.C. 20036

California Junior College Association
1020 Twelfth Street
Sacramento, California 95814

The Carnegie Commission on the Future of Higher Education
1947 Center Street
Berkeley, California 94704

Center for the Advanced Study of Educational Administration
University of Oregon
Eugene, Oregon 97403

Center for Architectural Research
Rensselaer Polytechnic Institute
Troy, New York

The Center for Research and Development in Higher Education
1947 Center Street
Berkeley, California 94720

Center for Research on Learning & Teaching
Carnegie Mellon University
Schenley Park
Pittsburgh, Pennsylvania

Center for Research on Learning & Teaching
University of Michigan
Ann Arbor, Michigan

Center for Urban Education
33 West 42nd Street
New York, New York

Commission on Instructional Technology
c/o Academy for Educational Development
Attention: Sidney G. Tickton
1424 Sixteenth Street, NW
Washington, D.C. 20036

Council of Educational Facility Planners
29 West Woodruff Avenue
Columbus, Ohio 43210
Attention: Dwayne Gardner

Educational Facilities Laboratories, Inc.
477 Madison Avenue
New York, New York 10022

Educational Planning Service
School of Education
Colorado State College
Greeley, Colorado 80631
Attention: Arthur R. Partridge

Educational Resources and Development Center
School of Education
University of Connecticut
Storrs, Connecticut 06268

Educational Resources Information Center (ERIC)
Division of Information Technology and Dissemination
Bureau of Research
U.S. Office of Education
Department of Health, Education, and Welfare
Washington, D.C. 20202

ERIC/CEF
Clearinghouse
Educational Resources Information Center
606 State Street, Room 314
Madison, Wisconsin 53703

ERIC at Stanford
ERIC Clearinghouse on Educational Media & Technology
The Institute for Communication Research
Stanford University
Stanford, California 94305

ERIC at UCLA
ERIC Clearinghouse for Junior College Information
Powell Library
University of California at Los Angeles
Los Angeles, California 90024

G.T. 70: A Consortium of Community Colleges
c/o Vice President Robert McCabe
Miami-Date Community College
Miami, Florida 33101

League for Innovation
c/o Lamar Johnson
School of Education
University of California at Los Angeles
Los Angeles, California 90024

National Community School Education Association
923 East Kearsley Street
Flint, Michigan 48502

National Council for Schoolhouse Construction
409 Education Building
Michigan State University
East Lansing, Michigan
Attention: Floyd G. Parker

National Education Association
1201 Sixteenth Street, NW
Washington, D.C. 20036

The Research Council of the Great Cities Program for
School Development
4433 West Touhy Avenue
Chicago, Illinois 60646

School Planning Laboratory
School of Education
Stanford University
Palo Alto, California 94305
Director: James D. MacConnell

Society for College & University Planning
c/o Columbia University
308 Low Memorial Library
New York, New York 10027
Attention: John D. Telfer

University Facilities Research Center
University of Wisconsin
819 Irving Place
Madison, Wisconsin 53706

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U.S. Department of Health, Education & Welfare
Office of Education
Office of Construction Service
Walter E. Mylecraine, Assistant Commissioner
Washington, D.C.

Western Interstate Commission on Higher Education
Denver, Colorado
Attention: John Minter

References to Additional Organizations:

Educational Directory, 1967-68: Part IV, Higher Education. Department of Health, Education and Welfare, United States Office of Education. Washington: U.S. Government Printing Office, 1968.

Smith, Stuart C. (ed.). Organizations in Educational Administration - A Directory of Information Sources. Eugene, Oregon: ERIC Clearinghouse on Educational Administration, University of Oregon, 1968.

PERIODICALS

The A.I.A. Journal
Published by the American Institute of Architects
The Octagon
Washington, D.C. 20006

American School and University (Monthly)
757 Third Avenue
New York, New York 10017

College Management (Monthly)
22 West Putnam Avenue
Greenwich, Connecticut 06830

College and University Business (Monthly)
1050 Merchandise Mart
Chicago, Illinois 60654

Educational Technology (Bi-monthly)
P.O. Box 508
Saddle Brook, New Jersey 07662

Federal Affairs Bulletin (Occasional
American Association of Junior Colleges reports)
1315 Sixteenth Street, NW
Washington, D.C. 20036 Free

Junior College Journal (Ten issues
American Association of Junior Colleges per year)
1315 Sixteenth Street,NW
Washington, D.C. 20036

Junior College Research Review (Monthly)
Publication of ERIC at UCLA
University of California at Los Angeles
Los Angeles, California 90024

Occupational Education Bulletin Free
American Association of Junior Colleges
1315 Sixteenth Street, NW
Washington, D.C. 20036

Research in Education (Monthly)
Published by ERIC in Washington
U.S. Government Printing Office
Washington, D.C. 20202

Contains information from the research projects funded by the U.S. Office of Education and reports collected by the eighteen clearinghouses.

PHILANTHROPIC FOUNDATIONS

One relatively unexploited resource for community college planners is the philanthropic foundation. A common complaint is that resources are not made available for planning. This is often the case. However, often the opportunity of securing a small grant from a foundation to underwrite planning has been overlooked. A relatively small sum of money may be sufficient to support travel, information gathering, consultations, pilot projects, institutional research, and additional staffing. This amount amount may be of great significance to the recipient college but measured in terms of the large grants commonly being made, it may be considered minor by a foundation. The immediate use and direct results of this type of expenditure has a strong appeal to foundations seeking recognition and tangible achievements.

A number of foundations are particularly interested in the field of higher education including the Ford Foundation, Esso Educational Foundation, United States Steel Foundation, Danforth Foundation, Kellog Foundation, Educational Facilities Laboratories (funded by the Ford Foundation), Sears-Roebuck Foundation, Alfred P. Sloan Foundation, and the Carnegie Foundation.

The most frequently ignored source of funds are small, local philanthropic foundations, many of which are unknown even to institutions in their immediate locale. This is a particularly fruitful source since they are often interested in local recognition, have a much less complicated procedure for making grants, and are susceptible to personal appeal. Even though community colleges are typically inexperienced at "grantsmanship," there are a number of ready references and aids in preparing proposals and administering grants. The American Association of Junior Colleges conducted a workshop on the subject and published a report entitled The Foundation and the Junior College, in May of 1965.

GOVERNMENT AGENCIES

The direct assistance available from Federal and State agencies for the planning of higher educational facilities is limited. Due to the fact that facilities are usually financed by either or both the Federal and State Governments, some degree of final authority and/or review of plans and programs for new college facilities usually occurs. However, this review is generally cursory in nature and does not creatively enhance planning.

Federal

Federal Planning Grants and Special Opportunity Planning Grants are available under the Higher Education Facilities Act. Although a substantial portion of the funds are set aside for use by state commissions, the remainder is used to encourage planning at the institutional level, specifically keyed to provide for both college and community needs. The highest priority has been assigned to activities that strengthen comprehensive facilities planning on a state-wide or regional basis.

A new major program for funding construction has been introduced by Senators Williams and Cranston entitled the Comprehensive Community College Act of 1969, but it is not certain that any funds will be made available for planning if this bill is passed.

One of the most significant forms of assistance the Federal Government provides planners is through funded research grants. The findings are disseminated through ERIC (Educational Resources Information Center). Investigations of many aspects of college programs and operations provide a major source of data. The ERIC Clearinghouse on Educational Facilities at the University of Wisconsin has prepared a number of reference lists and has begun to compile a significant collection of research and literature. The Clearinghouse at the University of California at Los Angeles specializes in community colleges and the one at Stanford in educational media. The program is still relatively new but it is possible to visualize that once underway, the availability of up-to-date information from a central source will be invaluable to planners. The ERIC system of publishing and disseminating information appears to be both practically and economically feasible for use even by the smallest and most isolated institutions. The monthly publication, Research in Education, reports resumes of recent publications and projects.

The United States Office of Education is not staffed or prepared to provide any significant direct assistance or consultation to planners. A rare example of interest in planning as a process is experimentation by Walter E. Mylecraine, Assistant Commissioner in the Office of Construction Services with an approach called the "Educational Facilities Charrette."

> The "Educational Facilities Charrette" is a technique for studying and resolving educational facilities development problems within the context of total community planning needs. The technique requires a multi-disciplinary group--educators, planners, architects, engineers, economists, psychologists, local public officials, citizen participants, and students--intensely studying community problems. Primary emphasis is given to educational facility and program as the central catalyst for revitalization of the total community. The principal purpose is to arrive at implementable plans and solutions to community problems in a compressed time period. The charrette is kept practical and viable through local commitment of 1) the direct participation of key public officials and local citizens; and 2) demographic data, maps, existing planning documents, studies of the area and other materials essential to problem analysis. These commitments of local resources lead to a high probability of implementation of charrette solutions.[1]

State

The states have a more immediate and direct relationship with public higher educational facilities. Nevertheless, this generally only takes the form of a final review or approval of plans and programs. However, at best this is a cursory examination. Occasionally states provide very broad guidelines for the local colleges or districts. Their apparent interest in planning in general and facilities in particular is extremely limited. James Theodores summarizes the situation aptly,

> There are broad differences among State education agencies in other areas, but in the school plant planning field their perspective is, with a few outstanding exceptions, unwholesomely similar. Too many see plant planning to be essentially, if not exclusively, a local responsibility. . . They are happy to advise the local district when asked but they see no constructive role for the State agency or State Government in this regard. . . In short, the typical State education agency is not responsive and not serious in the plant planning field. It therefore is understaffed and under-committed. State agencies repeatedly disassociate themselves from responsibility to improve local planning. This seems to characterize the attitude reported by most State agencies. It is an understandable point of view but seems remarkably parochial in 1968. Indeed, if confronted with a problem of the magnitude of that encountered in school plant planning a responsive State education agency would endeavor

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[1] Walter E. Mylecraine, The Educational Facilities Charrette, Unpublished Paper.

> to lead. If it cannot lead from the strength of legislated authority, if would endeavor to lead through professional influence. . . [2]

These comments are particularly well founded when applied to community colleges. Just as in the case of master plans for higher education, community colleges are a new phenomena in many states and still nonexistent in some. Since there is little available data on the extent of state assistance and participation in planning community colleges, a survey of twenty-six states was conducted as part of this project. A summary of the responses received from state educational agencies appears in the Appendix. The limited support demonstrated in the data may, in fact, be exaggerated since in several instances direct observation indicates actual practice is at variance with the official stated procedure. Nevertheless, it is clearly indicated that in the viewpoint of most states, planning is a responsibility of the local college board and administration. Little meaningful assistance, consultation, or direction is available to those who either seek it or need it from the state.

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[2] James L. Theodorus, *Crisis in Planning*, p. 25.

THE ARCHITECT

The architect's traditional role has been one of limited activity and input during the basic educational planning process. This has resulted in his being ill-informed, and in many cases totally uninformed on matters which affect, or should affect, his creative efforts.

In the comprehensive planning process, the architect should be involved at the earliest stages of discussion of the institution's objectives and planning. Where comprehensive planning has been absent, he has often been expected to make decisions for the institution which are outside the scope of his responsibility and experience. However, as a member of the planning team, he represents a major planning resource which is too often overlooked. An additional advantage resulting from the early involvement of the architect is that, through his intimate understanding of the educator's objectives and goals, he can be vastly more effective and creative during the design phases of the project. Through involvement the architect will be better able to express, in the physical facilities, the precise intent of the institution and to design into the buildings the subtleties of the program.

It may prove to be useful to some institutions to retain an architect who is experienced in this type of programming as a consultant, even though he may not perform the complete professional services required by the project. In any event, the architect's particular experience and point of view represents a valid resource.

CONSULTING SERVICES

The following is a partial list of individuals and firms who provide consulting services to educational planners:

Campus Facilities, Inc.
Warren Rovetch, President
Boulder, Colorado

Caudill, Rowlett & Scott
3636 Richmond Avenue
Houston, Texas 77027
Attention: William Caudill

Charles Blaschke
Institute for Politics & Planning
1411 K Street, Room 500
Washington, D.C.

Bolt, Beranek & Newman
Cambridge, Massachusetts

Daniel, Mann, Johnson & Mendenhall
3325 Wilshire Boulevard
Los Angeles, California 90005
Attention: Stanley M. Smith

Davis-MacConnell-Ralston, Inc.
Stanford Professional Center
750 Welch Road
Palo Alto, California 94304

George Ebey
4027 Scripps Avenue
Palo Alto, California

Educational Planning Service
Colorado State College
Greeley, Colorado

Heald, Hobson & Associates
230 Park Avenue
New York, New York 10017

Hewes, Holz & Willard, Inc.
Educational Data Processing & Planning
33 Thompson Street
Winchester, Massachusetts 01890

Arthur D. Little Company
Cambridge, Massachusetts

Office of Field Research & Studies
Rutgers, the State University
10 Seminary Place
New Brunswick, New Jersey 08903

The Perkins & Will Partnership
309 West Jackson Boulevard
Chicago, Illinois 60606
Attention: Charles W. Brubaker

Science Research Associates
Palo Alto Center
165 University Avenue
Palo Alto, California 94301

Systems Research Group
32 Salonica Road
Toronto, Don Mills, Ontario, Canada

BUILDING SYSTEMS

Pioneering research is currently being conducted in the development of standardized components which may be used in the construction of educational facilities. This approach began at Stanford University with the School Construction Systems Development (SCSD) project. It was continued by the University of California in their University Residence Building Systems (URBS) program in an effort to prepare for the addition of 4,000 residence hall units. The Academic Building Systems (ABS) program was recently initiated under a joint grant from the United States Office of Education to the Universities of California and Indiana to cooperatively apply the building systems concept to the development of instructional facilities.

In the building systems approach, data is first gathered which provides factual descriptions of existing facilities and analysis of the activities that actually take place in them. Then it is attempted to determine how successful the buildings are in facilitating these activities in the opinions of their users. Future trends in terms of both functions and activities are studied. From this data user requirements are defined. These characteristics are clustered and weighted by importance, and specifications for the development of common components are derived. It is then presumed that industry will take interest in performing the research and development necessary to manufacture components in anticipation of the potential market for them. The systems approach assumes the development of a sufficient number of components to allow for the design of virtually a total facility.

It has not yet been demonstrated that this approach is ready to be of immediate use to planners of higher educational facilities. A number of prerequisites must be met. First, this approach will have to be recognized and accepted by governmental agencies that control building codes. Second, trade unions will have to alter their attitude towards prefabricated products, and third, a means of including industry at an early stage into the process will be necessary since in the first attempts at implementing the systems approach, some of the components developed were prohibitively expensive. It seems safe to predict that if higher educational facilities are going to be built in the future, some degree of standardizing components will have to be achieved. This would also provide planners with more specific alternatives and theoretically a greater degree of certainty in budgeting and estimating.

The application of systems analysis to other aspects of planning is now beginning to appear in higher education. This approach seems particularly useful due to the number of complex variables in the planning problems. A systematic approach to decision making was begun in the early part of World War II by the Military. In the post-war years it was refined and applied to accelerate the development of weapon systems. A very enlightening and interesting book, New Look at Education, by John Pfeiffer, discusses the application of systems analysis to educational decision making.

Among the number of programs currently underway is a major effort by the member institutions of the Western Interstate Commission on Higher Education to create compatible management information systems for colleges and universities. Once developed, such a system would provide planners with ready references and the capability of making valid inter-institutional comparisons. Richard Judy and Jack Levine at the University of Toronto have developed an integrated information, planning, and budgeting system for university administration, they have entitled CAMPUS. It takes advantage of the computer's capacity to integrate the complex components of a university planning system into a resource simulation model. Once programmed, the model would be available for continued analysis of alternatives as they present themselves to decision makers. This approach has enormous potentialities in comprehensive planning since it ultimately would allow a variety of educational programs to be first simulated by computer and provide decision makers with rather precise potential outcomes presented in terms of necessary budget, staffing, facilities, and enrollment capacity. Within the present state of the art, any college could take advantage of such a program by using a remote terminal and purchasing time from the institution owning the computer and software. This would allow them to feed their own data into the model and receive an immediate response.

INDUSTRY

An unsuccessful attempt has been made in this study to identify sources that provide detailed information about new educational equipment and hardware. Unfortunately, there is none. Descriptions of a variety of building materials, equipment, and furnishings are found in The Architectural Catalog File and Sweet's Interior Design File, published by the Sweet's Construction Division, McGraw-Hill Information Systems, offering educational planners some useful data. Except for it, planners must rely heavily upon individual manufacturers' representatives, trade publications, and annual exhibitions for product description and specification data. This makes it extremely difficult to assemble all of the diverse material necessary to thoroughly research the equipment market and arrive at intelligent decisions. Further it leaves planners exposed at the early planning stages, when they may be vulnerable to the persuasive appeal of salesmen. It is hoped, therefore, that those firms producing educational equipment and hardware will soon cooperate with a publisher such as McGraw-Hill in the annual publication of a comprehensive product file. In the meantime, an effort to develop a system for an educational products information exchange has been proposed by K. Komaski of Education Products Exchange Institute, New York, New York.

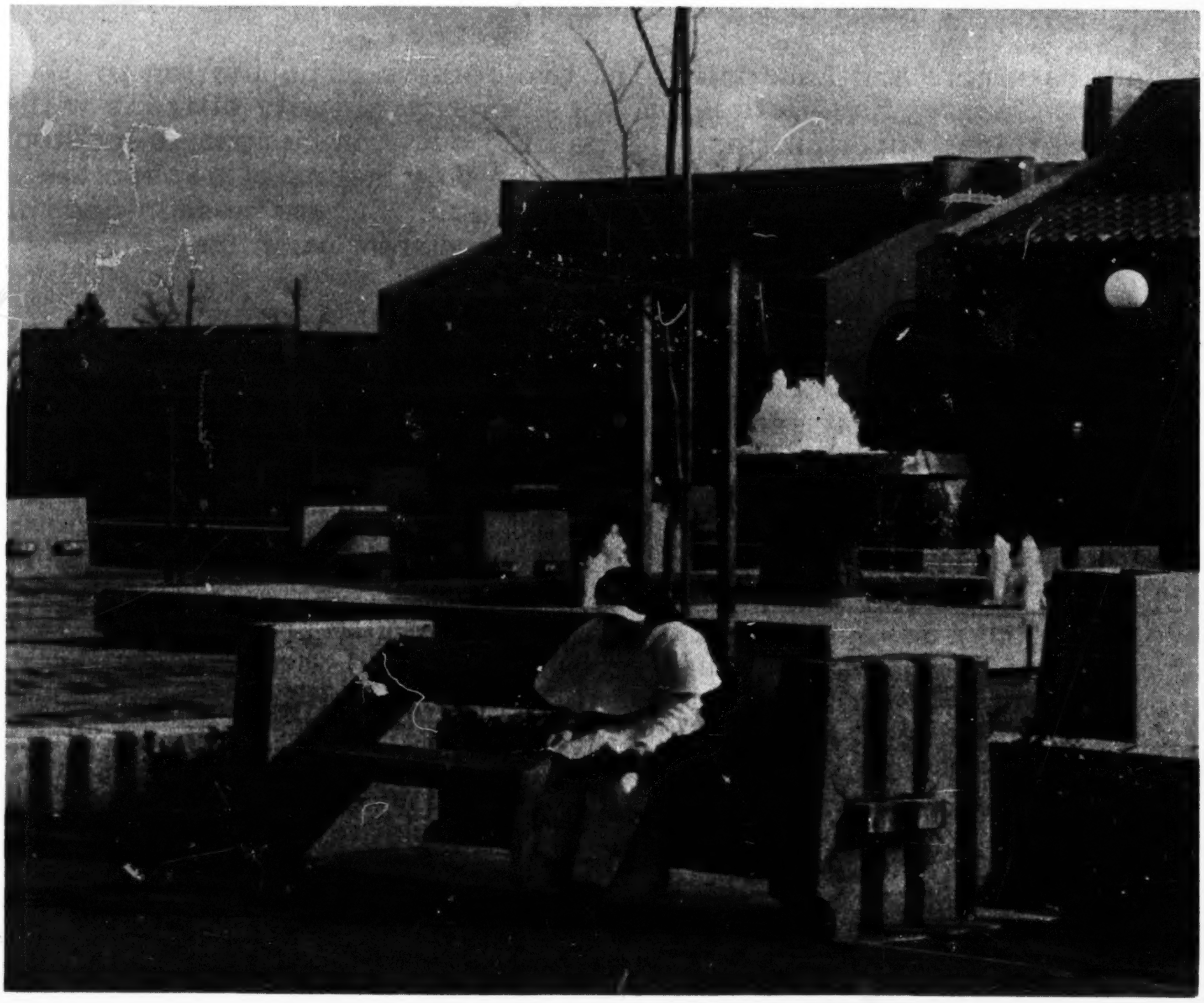
Summary

This chapter has presented a partial listing of the resources available to educational planners. Although the list may appear long and comprehensive, in reality when measured against the dimensions of the total problem, both in terms of the enormous demand for new facilities during the next decade and the billions of dollars that will be spent upon construction, it appears none too extensive. Further effort should be made to consolidate and synthesize the available data. Even with the assistance of ERIC, it has taken more hours to compile this information than most planners could afford to devote.

CHAPTER IV

FIFTEEN NEW COMMUNITY COLLEGES

This chapter presents in brief narrative form the results of interviews and observations at fifteen new community colleges in the United States. The effort was to discover from those who planned them how they were developed and from those who use them how well they function. It is believed that these reports represent valid observations based upon the perceptions of both the interviewees and the interviewers. Naturally this type of information is subject to error because of the method by which it is acquired, and the decision to include as many colleges as time and budget would allow. However, when the reports of all fifteen colleges are viewed together, certain consistencies begin to emerge and observable patterns are clearly visible. This is the value of the data. It demonstrates that significant potentialities for the improvement of higher education lies in recognizing the value of comprehensive planning.



DE ANZA COLLEGE / FOOTHILL COMMUNITY COLLEGE DISTRICT

ANNE ARUNDEL COMMUNITY COLLEGE

Started in an old high school facility, Anne Arundel College experienced immediate and rapid growth which resulted in the move to its new permanent campus in 1967. The site of the school is located in beautiful rolling, wooded country twenty miles south of Baltimore and ten miles north of Annapolis. Its buildings are handsome with well appointed interiors, and there is an air of serenity about the campus.

In the development of the program, national statistics were used as a planning guide and as the basis for acquiring financial support. Unfortunately, the results demonstrate what can occur when this approach is taken in a time of changing social and economic patterns and educational innovation. It appears also that insufficient time and resources were devoted to the development of initial planning concepts and that there was a lack of understanding of basic objectives. The first President's view was that a community college curriculum should be based upon the traditional concept of the first two years of a four-year liberal arts program. This factor, combined with the governing County board's seeming lack of understanding of the purposes of a contemporary community college, resulted in creating an institution which may experience difficulty in meeting the educational needs of its community.

Both Baltimore and Annapolis, the two centers of population in Anne Arundel County, have large concentrations of minority citizens with limited educational opportunities. As pointed out, the campus is located midway between the two cities. To date, the only means of transportation is private automobile. Therefore, the people who are most in need of the College's resources are effectively excluded from participation.

The conventional liberal arts preferences of its planners have resulted in programs which seriously limit the opportunities for students in need of technical and vocational training. The problem seems further aggravated by an apparent sense of competition between the liberal arts and vocational faculties.

The facilities were planned by a "team" of four architectural firms based upon preferences of the original faculty members, and made little provision for the effective implementation of media-oriented programs. Although allegedly designed for flexibility, most of the teaching spaces are of fixed configuration constructed of masonry walls, and thus offer little opportunity for reorientation. Unfortunately, apparent lack of effective leadership and insufficient insight on the part of those making planning decisions led to the construction of a facility which cannot respond in a creative way to the pressing community needs.

CAÑADA COLLEGE

In September, 1968, San Mateo Junior College District opened its second campus, Cañada College. Skyline College, the third campus,is scheduled to open in September of 1969. This district has been serving the peninsula communities immediately south of the City of San Francisco for forty years. The first new campus, College of San Mateo, was completed in 1963, and enrollment exceeded estimates by one-third, so the decision was made to develop additional campuses.

Planning of both new campuses was under the direction of a committee made up of three administrators from the College of San Mateo, two of whom became the respective presidents of Cañada and Skyline, and the third is now an educational planning consultant. Both campuses were developed simultaneously from the same basic core of information but the result is described as "unidentical twins." Part of this is explained by the fact that different architects were retained for the two projects. The basic program was developed from recommendations by each instructional division at the first campus. Their preferences, based upon experiences at College of San Mateo,were the most important criterion. However, this did not result in any significant consideration of a different approach such as the use of new forms of educational technology. Since the new campuses are being developed in incremental phases, it is suggested that there is provision for extensive changes in the future.

In technical and vocational programs, there has been successful experimentation in the development of "Cooperative Education." Local employers are providing opportunities for directed field experience in certain curriculums. A grant from the Ford Foundation has assisted in launching this program. The College feels it would be difficult to provide students with a comparable educational experience on the campus. At the same time, increased community support of the College has resulted.

The District has experienced difficulties in assuring that their original program is successfully translated into facilities. This may stem from the limited resources available for coordinating the educational specifications with the architectural plan and providing adequate supervision of the construction phase of the project. This is a chronic problem since a number of extensive changes were required immediately after the completion of the first campus and some change orders are still being disputed.

It is evident that emphasis has been placed upon achieving of monumentality in the exterior appearance of these colleges. College of San Mateo, aptly nicknamed "The Acropolis on the Hill," is genuinely imposing. Its formal compositon of a series of large, imposing elements, sited high above the community, with a superb view of the Bay, is an impressive experience for the new-comer and has earned it several national awards. As a functional and appropriate learning environment for young people, many from lower socio-economic groups, it seems open to question. From insufficient consideration of gale force winds that whip across the unprotected walkways and outdoor areas, to the very obvious and distinct physical separation of the academic and technical programs, there is little to be immediately perceived that relates to creating an environment fostering learning or human relationships.

Cañada is a refinement of College of San Mateo. A different architect was successful in creating a more humanistic environment and should be commended for exploiting a difficult site while preserving virtually every tree. But beyond this, Canada does little to respond to the challenges of the times. It is merely a new roof over a conventional, traditional program. It may demonstrate that meaningful faculty participation should not simply be providing everyone an opportunity to express their preferences and complaints about facilities, but rather establishing a means of effectively incorporating teachers in setting the basic institutional goals and designing systems for their implementation.

CHABOT COLLEGE

The first campus of Chabot College, built in 1961 in Hayward, California, was planned quickly to accommodate a traditional community college program. The relevance of Chabot to this study is not what happened at the Hayward campus but, rather what is being contemplated in programming the next campus and the developments which lead to this new viewpoint.

After eight years of experience a new philosophy has begun to emerge. If these concepts are adopted by the Board, they will have a profound effect upon the development and planning of the next college. Basically, the new direction is toward decentralization through the establishment of cluster "academies." With the exception of technical and vocational programs, each academy will be organized around a general education core but without a specifically defined curriculum. Student Personnel Services, the Library, and other College-wide services will be incorporated into each academy. An academy will have individual and group learning spaces, faculty offices, student activity spaces, and a commons area with food services and an outdoor lounge.

An important ingredient in the program is direct student participation in the teaching process as associates, monitors, and proctors. From this, it is hoped will arise peer group pressures that will accelerate the rate of learning. Students will be organized in learning teams and work together through an entire sequence of classes. Less emphasis will be placed upon formal classrooms and more upon informal areas.

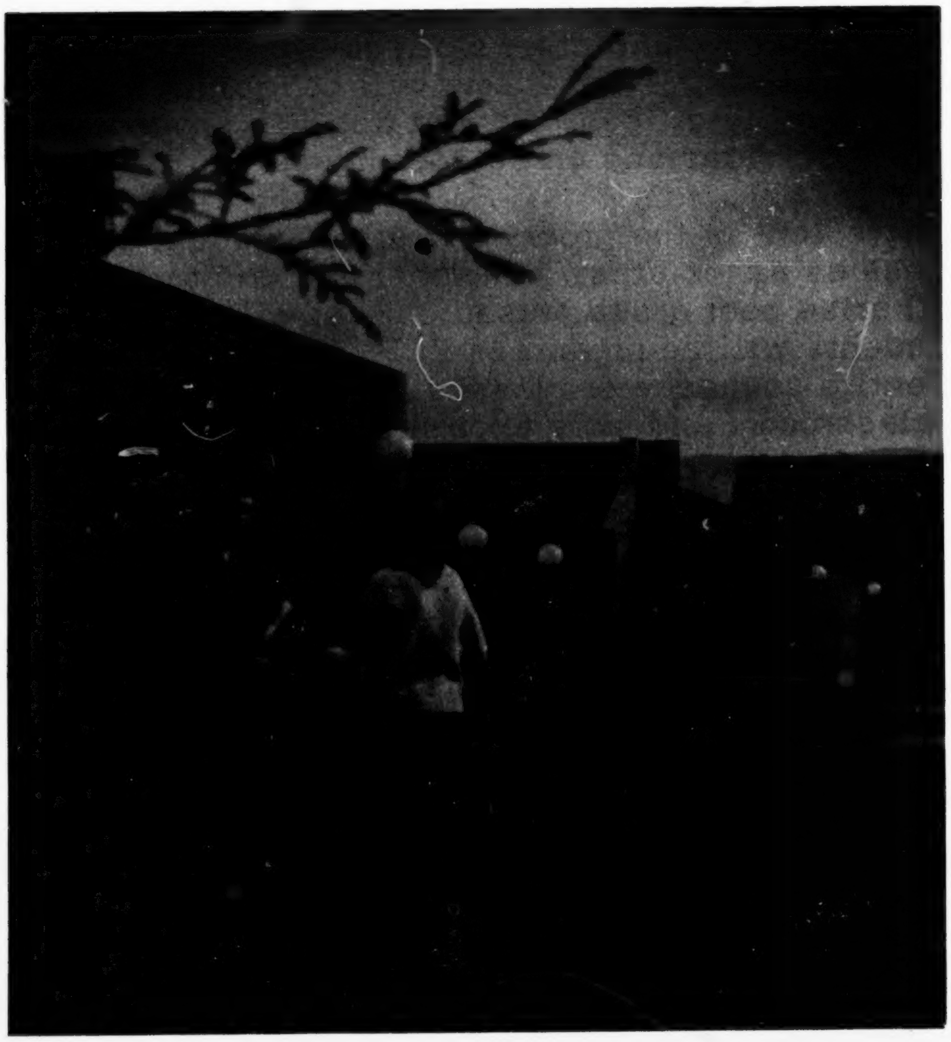
Most vocational and technical programs will be taught partially off campus with increased dependence placed upon work experience. It has been established that more effective learning occurs in an actual work situation than in a campus laboratory, programs may be kept technologically up to date, and direct costs reduced. Carried to its logical conclusion, field experience instead of on-campus training could have a profound impact upon many career programs.

What is of immediate importance is that the planning emphasis is not upon facilities but more fundamental issues. A year of study has preceded the beginning of the preparation of educational specifications. It is anticipated that the same architects will plan the second campus, but they have not yet been involved in the project. However, the quality of the environment of these academies has been considered and they are expected to be "comfortable places where people can civilize each other."

Apparently the primary impetus for this significant new direction comes from the widely respected President of Chabot, Dr. Reed Buffington. He has effectively kept the seven-man board, five of whom date back to the beginning of the District in 1961, informed and involved. Continuous Presidential and Board effort has maintained strong community support.

Planning the Chabot facilities was done with the assistance of a well-known consultant. Faculty committees approved the plans for their own areas. The low buildings are arranged in a circle around the library creating a small outdoor amphitheater in front of the auditorium building. The campus has an institutional character unfortunately reminiscent of a great number of contemporary California high schools. The College has a small planetarium which is extensively used by nearby schools and is part of the popular community service program.

Chabot's plans for the future are exciting and provocative. Some of the proposed new forms of teaching will be tested on the existing campus. It is stimulating to witness vitality and innovative drive arising out of a conventional beginning. This careful and thoughtful evolutionary development appears to have a high probability of success.



DE ANZA COLLEGE / FOOTHILL
COMMUNITY COLLEGE DISTRICT

DE ANZA COMMUNITY COLLEGE

Located in Cupertino, California, De Anza College, the second of two colleges established by the Foothill Community College District, was opened in September, 1967. Its predecessor, Foothill College in nearby Los Altos, opened several years earlier. It was also designed by the Architects Kump, Masten, and Hurd, and although employing a different architectural vocabulary, served as a model for De Anza.

The current enrollment of De Anza is approximately 4,000 students. The campus is master-planned to accommodate 5,000 students. This enrollment is estimated to be reached realtively soon.

The Foothill District, located near Stanford University, serves a community of medium to upper middle class residents, and competes with nearby San Jose State College for many of its students.

The architecture of De Anza is characterized by low, orderly, single-story buildings, planned principally around small to medium sized courtyards. A major plaza, still within human scale, serves as the focal point of the campus. Building materials are textured concrete, redwood, and brown tile. Most of the buildings have arcaded porches. The overall effect, although not an actual copy, is that of an intimate Mexican town.

The students respond to this environment in a positive and encouraging manner. They linger in the courtyards and on the porches, lounge informally about the main plaza, and give every impression of being completely at home and comfortable on the campus and in the buildings. When asked how they feel about the architecture, they are somewhat noncommital. Most indicated that they had not given it much thought. One young man said that he had attended a good-looking high school, and "guessed that he was accustomed to nice buildings." Further investigation showed that local high schools had indeed built well-designed facilities.

One could conclude that the combination of an appropriate physical environment and a relevant academic program goes a long way toward encouraging a meaningful interaction between students as well as between students and faculty. The same factors probably also account for the large proportion of students who stay on campus during free periods between classes.

The planning for De Anza was an evolutionary process which drew heavily on the experiences gained from Foothill. De Anza's President, Dr. Robert DeHeart, was intimately involved in the planning of both colleges under the leadership of Superintendent Cal Flint, a retired contractor with the determination to create a superior community college. A number of the original faculty who participated in the planning of the Foothill campus assisted in the planning of De Anza, and now form the nucleus of its faculty.

Planning and development of the program for the second campus was not hurried. Adequate time was allowed for thorough analysis of goals and objectives. Interaction was encouraged among all of the participants, faculty, administrators, and architects. Not all such participation resulted in unanimous agreement. In retrospect, however, those involved now agree that the time and effort expended was highly productive and well worth the effort.

Three basic objectives strongly influenced planning decisions. First, the District was committed to an enrollment limitation of about 5,000 students. Second, all agreed that the planning should facilitate student access to the faculty, both from the standpoint of availability of faculty time and convenience of physical location. Third, it was deemed essential that both academic and physical planning should serve to minimize distinctions between terminal, career, and transfer student programs. These underlying objectives have been successfully accomplished through thoughtful design and arrangement of the facilities.

One fact stands out in reviewing the events and decisions which most strongly affected the planning of both Foothill and De Anza Colleges: There is a clear consensus that the greatest single constructive influence was the leadership of the Superintendent, Cal Flint, who surrounded himself with young, capable individuals manifesting his own enthusiasm and dedication. The resulting administration has earned the support of the Board of Trustees, the faculty, and the community at large.

While these positive factors prevail and continuing success of the institution seems assured, there are some major difficulties for the administration. Although located in an affluent area well-supported by a firm tax base, the school is finding that its revenue sources are insufficient to support its current operating costs, which appear to be above those of other comparable institutions. Firm conclusions should not be drawn from the facts available. However, it would seem safe to assume that financial and budgetary planning in the developmental stages of the project was not as comprehensive as that for the physical and academic programs. The possible results of this apparent oversight cannot be accurately forecast. One reaction--that of cutting back staff resources while at the same time accepting increased enrollment--could result in some deterioration of the quality of the current program.

DELTA COLLEGE

Delta College was established to meet the educational needs of the three neighboring communities of Saginaw, Bay City, and Midland, Michigan. As it was originally conceived by its first President, the College was to have ultimately become a four-year institution. However, when the first President left to assume the leadership of a four-year institution, pressure from within the community, together with encouragement from the second President, firmly established the school as a community college.

The current President sees the College as a massive educational resource for the community at large. His goals are for Delta to be a "catalyst for change" with a broad spectrum of operations. He has backed up these aims by surrounding himself with a progressive administrative staff and faculty that has demonstrated interest in innovation.

The original educational specifications produced disappointing results. Now a new "master plan" is being written to provide for an increase in the maximum full-time enrollment to 7,000. From this a detailed program planning guide will be developed and the institution's new direction will be defined.

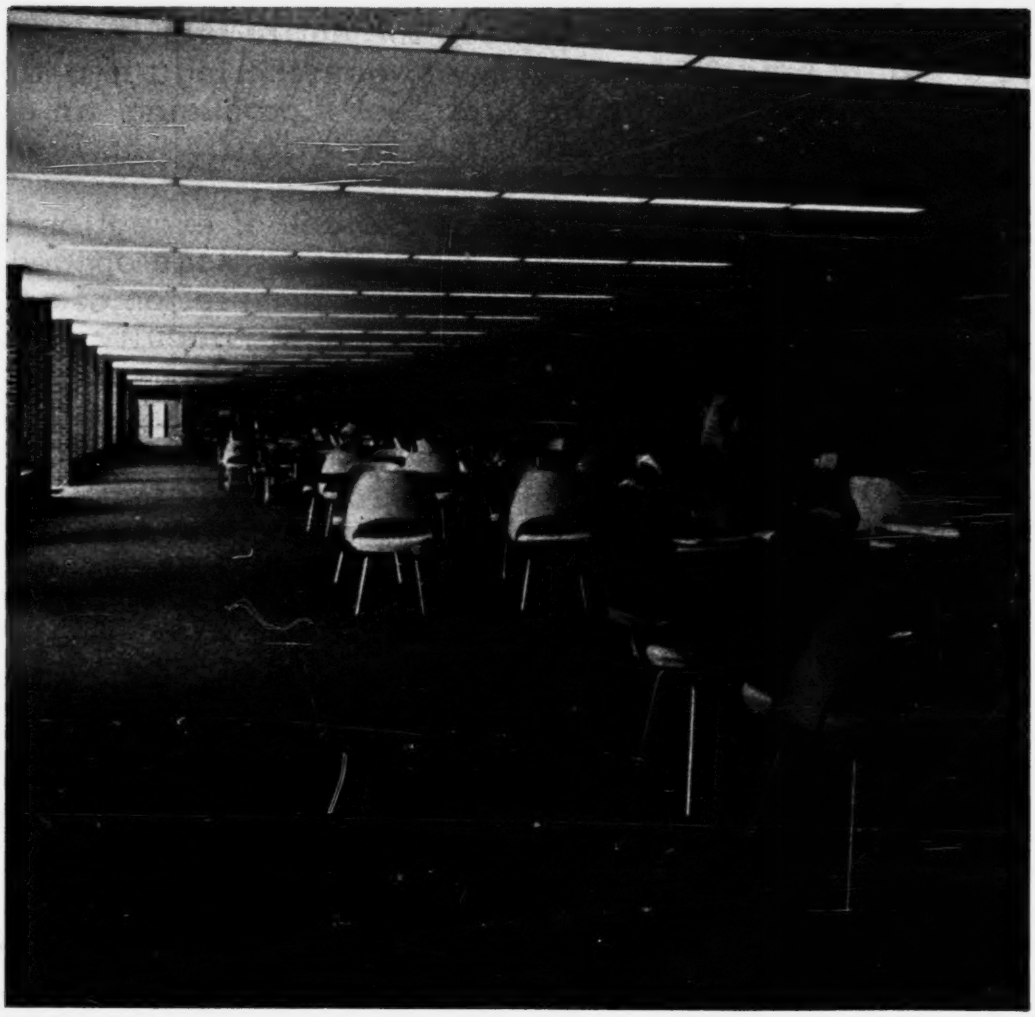
One original planning decision was to keep the entire facility under one roof. This was a highly practical requirement, considering the nature of the climate. However, it resulted in the architect's producing an environment with an institutional character and little variation.

A feature of the "under one roof" concept is the use of exceptionally wide corridors, which at first seem ungainly. When the College opened, the extra width was utilized as classroom space. After completion of additional classrooms, the spaces were converted into lounges, faculty offices, and study carrel spaces. Where the spaces are currently used as lounges, there is a tendency for the formal classroom activity to continue after class as informal discussion in the corridors. Since a great many other schools have tried in vain to generate this type of informal learning activity, the accomplishment at Delta is doubly rewarding. The next step in the development of the idea should be to find ways to make these spaces more appealing and less institutional and impersonal.

The latest building additions to the College were planned with the assistance of outside educational planning consultants using formulas derived from their empirical studies. In the opinions of the users, the results have been both qualitatively and quantitavely unsatisfactory. Judging all the facilities only on the basis of their adaptability and ignoring their environmental quality, one may conclude that the original program was sufficiently general to produce results which have reasonably met the school's changing needs.

In the area of educational media use, Delta has begun to move forward on a planned program with emphasis on software. The faculty is given encouragement through reduced teaching loads and allowances for research projects. One faculty member has developed an audio-tutorial program for nursing, combining the use of single concept films, that is being made available for national distribution. The College has committed financial resources for the stimulation of new ideas by sending a faculty group on an extended tour throughout the country. The investment on this trip alone has produced 140 specific suggestions, most of which have resulted in constructive changes. The program is on-going and has a promising future.

It would appear that at Delta College a vital and progressive approach to post-high school education is emerging. The facilities neither impede the program nor do they make a positive contribution to its success. It is unfortunate that a more appropriate physical environment could not have been coupled with the current educational program. Had the original program stated the institutional objectives as they are now conceived, the planning team may have been guided to a more successful solution.



DELTA COLLEGE / MICHIGAN

EL CENTRO COMMUNITY COLLEGE

In 1965 the people of Dallas, Texas, responding to a growing and heretofore neglected need for a comprehensive community college, created a new college district, elected a seven-man board of distinguished community leaders, voted a $35 million bond issue, approved a tax rate sufficient to finance the program, and accomplished it all in a single election. Prior to that time, there had been no publicly supported higher education in Dallas County. Following World War II, light industry became an important factor in the local economy and, at an increasing rate, continued to make demands for technically and professionally trained people. Recognizing this need, the Chamber of Commerce, supported by the community business and political leadership, spearheaded a campaign which terminated in the successful election and set into motion a series of events which now promises to create one of the most relevant and truly exciting educational programs in the country.

The original commitment to the voters promised that one community college could be established immediately. In order to accomplish this, several old down-town buildings, including an abandoned department store, were purchased in the spring of 1966. A local architect was retained, work got underway, and by the following fall the buildings had been completely renovated. During the same period, the educational specifications were written with the aid of consultants and considerable input from representatives of local business and industrial interests.

The school was opened with a total enrollment of 4,000 students, a figure which has now grown to 7,300. In the words of El Centro's President, Dr. Ronald Rippey, "Everyone in the County seemed to get behind the project." Dr. Rippey also had praise for the architect, who, he said, was inventive, creative and flexible in his contribution to the conversion of the tired old buildings into a truly urbane down-town college "campus."

The net results of this rapid but highly effective effort are remarkable. El Centro may be the most successful urban college in the country. Its central location assures access to all of those students in the community who are most in need of its services. The student body is composed of approximately fourteen percent black, four percent Mexican-American, and eighty-two percent white students. Although limited in size and in some facilities, the College creates an exciting and stimulating environment in which close student-faculty contact is encouraged, facilitated, and practiced. Careful selection of faculty and an adequate in-service training program has already developed an enthusiastic and creative attitude which reflects the leadership of Chancellor Priest and President Rippey, and which reaches through the administration and faculty to the student body itself.

The combination of the effective leadership of Chancellor Priest and the continuing support from key Dallas leaders, as well as the community at large, would appear to assure the new district sufficient resources to accomplish its long-term objectives.

In addition to El Centro, three new campuses are currently in the planning stage. The process being used is aptly described as a "textbook case." A mix of consultants, faculty, and district planners have created programs emphasizing individual learning experiences focusing upon "communality clusters." In these clusters, classrooms, faculty offices, consulting spaces, study areas, and lounges are interrelated. Emphasis is placed on developing a close relationship between all elements of the campus in much the same way as is planned into many successful new shopping centers. Although drawn from similar programs, each of the designs for the three new campuses shows a fresh individual character. This accomplishment probably results from the fact that separate architectural firms, with demonstrated dedication to meaningful environmental design and headquartered outside of Texas, were teamed with well qualified local firms for each of the three projects.

Clearly, the Board and Administration have placed strong emphasis upon the achievement of quality, both in the physical environment and in the educational program, by making sufficient resources available and having established well-defined objectives.

The development of educational media is being approached in an open-minded and thoughtful manner with the principal objective of achieving a closer one-to-one relationship between faculty member and student. Here again, adequate resources are being made available to the program, particularly in the area of software development and production.

The visionary leadership of Dr. Priest, combined with the educational vacuum in two-year institutions in the area, and the generous commitment of resources on the part of the Dallas community, give promise of a fine future for this district. If El Centro is a measure of the sensitivity, leadership, and skill which will be applied in developing the new colleges now in the planning stages, the Dallas District will surely be one of the most effective in the country.

GOLDEN WEST COLLEGE

Golden West, the second campus in the Orange Coast Junior College District, is located eleven miles from the first campus, Orange Coast College. The District is located in one of the fastest growing population centers in the country. Begun in 1966, in an agricultural area south of Los Angeles, the College is now surrounded by typical Southern California suburban sprawl.

Plans for the College had already been drawn prior to the selection of the President and none of the current administrators or faculty had been involved. A primary objective of the building program was to develop maximum flexibility, which was achieved through the use of a standardized forty-foot modular system. Flexible partitioning, lighting, communications, and air-handling equipment provide a means of alteration to accommodate program changes. The system appears to function well except for the fact that the large module, like most modules, cannot always appropriately fit the wide range of space requirements called for in such a facility.

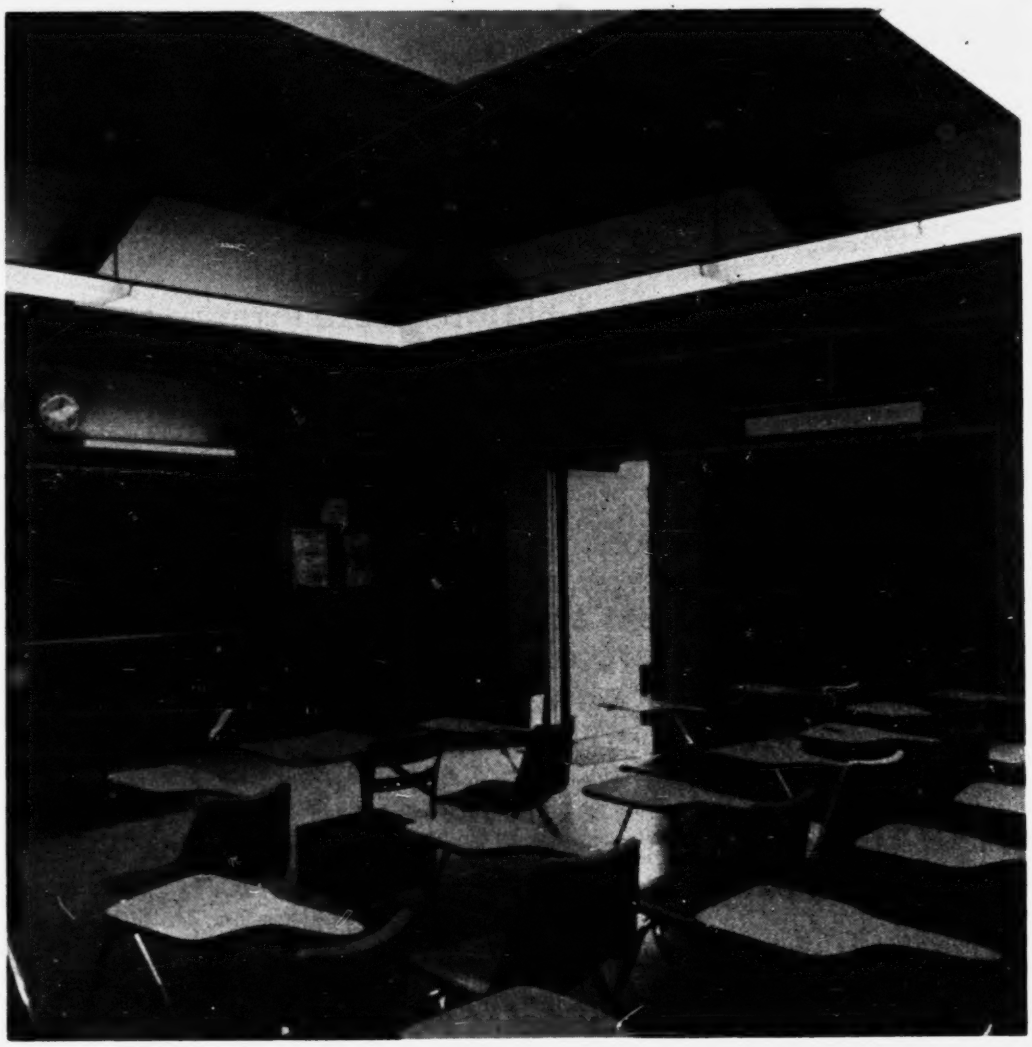
In an effort to create a visual separation between the surrounding suburban areas and the campus, the Architect provided earth mounds which delineate the perimeter of the campus. The success of this design device cannot yet be judged fairly since the landscaping is immature and the earth elements appear more as dikes which do not achieve a pleasing effect.

The principal buildings are arranged to create a large central courtyard. This space is of such immense proportions, that it is out of scale with the College and its student population. Had an intimate central space been developed instead, all of the lively activities of a "community college" could have related in a meaningful way.

Impetus for the development of new approaches to teaching has partially come from a summer project in which a systems approach to learning has been attempted in Mathematics, English, and Biology. Although hardware is available in the Media Center including three video play-back channels for viewing, audio-tutorial equipment, and terminals for computer-assisted instruction, the faculty is responsible for preparing software and very limited assistance is available to them. As at many of the other colleges studied, the major use of audio-tutorial is in Biology. Dr. Postelwaite's concepts have had a profound effect upon these new two-year institutions.

Facilities at Golden West have not impeded the development of new programs, although apparently some faculty members feel too much may have been invested in buildings. In the next imcrement of the campus to be constructed, the basic design concept will be retained; however, more small patios will be provided to encourage greater group interaction and dialogue.

Golden West has succeeded in meeting the basic needs of the area it serves with a sound instructional program. However, an equally important community need remains to be satisfied. Since the population is extremely fluid in nature and little "sense of community" exists, the institution has an opportunity of filling this void by becoming the focal point for intellectual, vocational and cultural activity. There seems to be a sense of frustration on the part of the administrators and faculty concerning this problem. Efforts have apparently been made to make the College more community-oriented but with little success. Ask most residents of the area, "Where is the community center?" and the reply is often, "At the shopping center." How unfortunate the dynamism, excitement, and gaiety of the shopping center cannot in some way also be found in the educational center. Such an achievement would attract and give purpose to the entire community as well as captivate and stimulate the students and faculty. This is clearly an instance where the quality of the environment can be an important ingredient in achieving total institutional success. It requires careful consideration if the College seeks to serve the community in a broader context.



HAULI CLASSROOM / MAUI COMMUNITY COLLEGE

LEWARD OAHU AND MAUI COMMUNITY COLLEGES

The State of Hawaii possesses many unique and attractive characteristics, sometimes more admired and recognized as valuable by her visitors than her own residents. These qualities, reflected in basic planning concepts, could have a profound and beneficial effect on the design of the State's community colleges. Unfortunately, however, many of these highly individualistic characteristics have, to date, been ignored. Emphasis, instead, has been placed on seeking stereotyped models from the Mainland as the sources of inspiration and guidance.

Composed of eight separate islands only minutes apart by air, but significantly different in geographical and physical characteristics, population, and economic structure, the State offers an unusual opportunity to create a fresh and personal approach to educational and facility planning.

Being a young State, Hawaii's political traditions are founded on a strong sense of independence, tempered by a newly felt pride in belonging to the Union. Her racial composition is flavored by peoples of Japanese, Chinese, Philippino, Korean, and native Hawaiian background, as well as Caucasians. Culturally, Hawaii is a sympathetic joining of East and West. Clearly these characteristics offer challenging opportunities and put unusual demands on the educational system, which has responded with vigor--if not sensitivity.

Organizationally, all higher education within the State is centered at the University. There are no local school districts. Prior to 1964, when the Legislature created the Community College Program, educational opportunities were limited to the two University campuses, one junior college in Honolulu, and about five technical schools. Now, all of these institutions, as well as the new community colleges, have been brought under the administrative and budgetary structure of the University. With this centralization of authority and control, there has developed a close working relationship between the University administration and the Legislature. The results of this liaison appear to be beneficial from the standpoint of efficiency and getting the job done. However, a good case could be made to support the notion that such a system does not encourage sufficient input from the local community, so that its special needs and characteristics may be reflected in the planning process.

Leeward Oahu Community College, designed by a large Mainland architectural firm, dramatically demonstrates these points. Its buildings in no way relate sympathetically to either the semi-tropical climate or the site overlooking Pearl Harbor. There are no attractive exterior spaces, for which Hawaii is known, designed to encourage social interaction, nor is there an overall campus scheme creating the atmosphere of a socio-educational community so sorely needed in that particular location. Instead emphasis has been placed upon structural efficiency and flexible convertability, both entirely admirable qualities but not, in themselves, of sufficient importance to compensate for the lack of an appropriate environment. This situation is particularly difficult to understand in the light of Hawaii's reputation as an out-of-doors, nature-oriented land.

On the other hand, Maui Community Colleges makes some gestures toward being an educational community center, but misses, in terms of physical planning, for many of the same reasons as Leeward Oahu. The College is small, with an enrollment of 680 students, and has a limited growth potential since it is located in a stable rural agricultural setting.

Begun as a vocational trade school, the original buildings were of open light frame construction with corrugated metal gabled roofs and broad eaves. Although simple and without frills, they were and are still well suited to the climate and make an appropriate setting for the school's activities.

When Maui was given community college status, an architect from the East Coast of the Mainland was retained to make a master plan for the school's long-range physical development. In the resulting master plan, however, there is little indication of a feeling of empathy on the part of the designer towards either the physical setting or the population of Maui. A formal mall, wholly inappropriate in the rural setting, and a projected student center cut the campus in half. This arbitrary device tends to set the old vocational school apart from the new general classroom buildings, science laboratory and library. Through physical isolation, dictated by the master plan, the opportunity to bring the vocational students more intimately into the life of the campus was, to a large degree, lost.

On the other hand, the design of the small individual classroom buildings produces a harmonious and appropriate result. The concept of the "hauli" or house--each providing a single classroom and designed in the traditional Hawaiian manner by a local architect--proved to be an economical and sensible means of easily accommodating the gradual rise in enrollment without disrupting the remainder of the campus.

Unfortunately, this enlightened point of view was not transferred to the design of the Science Building or Library, which are copies of the Mainland forms, inappropriate to the local climate and site and to the character of the remainder of the campus. By utilizing the planning staff of the University and centralizing control and decision-making, the Hawaiian Community Colleges have responded rapidly to the apparent backlog of educational needs. There is agreement among the administrators that the University has been generous and enthusiastic in its support of the new system. In the desire for expediency, some genuinely important aspects concerning the specific nature of the community were overlooked in the planning process. It would appear that too much emphasis was placed upon emulating Mainland solutions both in program and architectural design. The special qualities and needs of Hawaii might have been more successfully incorporated into planning these colleges had more time and resources been devoted to a thoughtful development of the program.

In terms of the quality of communication between those immediately involved in the process at the planning level, the system seems to be working well. Of concern, however, is the often expressed opinion that local architects are not sufficiently experienced to design community colleges. There is evidence that the value of specific expertise in the field is greatly outweighed by the difficulties of communication and lack of empathy for local conditions as demonstrated by Mainland architects and planners.

In addition to challenging architects with unusual and highly stimulating environmental conditions, Hawaii offers a splendid opportunity for planners to evolve innovative techniques for providing educational opportunities to students in sparsely populated areas. This is a problem that to date has not been squarely faced. Merely building additional small colleges, such as Maui, with limited resources will not provide the quality and diversity of educational experience which will be offered by competitive institutions in Honolulu or on the Mainland.

The educational future for the State appears bright. Nevertheless, there are some compelling problems and opportunities which deserve further study.

MERAMEC AND FOREST PARK COMMUNITY COLLEGES

The Junior College District of St. Louis, Missouri, established in 1962, was the first county-wide agency to be organized in that community. It encompasses twenty-six separate school districts and has constructed three permanent campuses. Two of these, Meramec and Forest Park, represent an extremely interesting contrast in basic planning and environmental concepts, yet each was programmed and developed under the same leadership.

Meramec is a suburban campus composed of conventional, low-rise structures arranged on a generous site and creating an informal, harmonious educational setting. Forest Park, on the other hand, is an urban campus, built on a long, narrow, restricted site, parallel to a major freeway and well within the center city. The campus is designed as a megastructure, long and narrow, to accommodate the difficult site. It is multistoried, strong--almost severe--in architectural character and unmistakably a city-oriented institution.

Each of these campuses has its own distinctive architectural character, each creates an appropriate and comfortable setting for the particular student population it serves. And yet, each succeeds in reflecting the point of view and educational commitment of Dr. Joseph Cossand and his colleagues who were responsible for programming and planning both institutions. It is a tribute to these educators and their architects that the educational objectives of the district have been so well and consistently provided for on two distinctly different sites. The results, together with impressive academic achievements, lead to the conclusion that St. Louis may very well have one of the most promising programs in the country.

Both colleges demonstrate a humanistic approach to planning facilities and an avoidance of unnecessary specialization. A genuine concern for the quality of the environment is clearly visible. For example, small lounge areas are conveniently located throughout the buildings, providing students an opportunity for informal conversation or moments of study. Attention was given to both horizontal and vertical traffic flow to insure ease of circulation and at the same time bring students into convivial contact. Materials, colors and furnishings were selected with care. The results are comfortable and pleasant and appropriate to the character of each campus--one suburban, the other urban.

One objective in planning was to achieve intensive utilization. There was also a general commitment to orthodox teaching methods with the intention that innovation be viewed as an option. Planning was by faculty committees and predominantly reflected Dr. Cossand's point of view. However, sufficient latitude was built into the system to result in two distinctly different colleges. Both Meramec and Forest Park appear to reflect the educational needs of their immediate communities. It seems clear that these considerations were included in the basic planning decisions. The district received national recognition for use of computer simulation in making decisions concerning the sizes and numbers of classrooms. The consequences of this technique are somewhat uncertain. However, at the time it apparently gave the planners greater confidence in making decisions. The results are, in the opinion of the users, eminently successful in the manner in which they meet their needs.

At Meramec one observes a refreshing approach to the use of educational technology. In a quiet and unobtrusive manner, several splendid applications of new media have been developed and implemented by faculty members. Without making major commitments to hardware, new techniques have been carefully developed and adopted. The orientation has been to encourage the gradual evolution of individualized instruction through the intense participation of faculty. Support is provided by committing four percent of the salary budget to instructional research and development. The facilities, although not of a special or unique design, have adapted satisfactorily to this effort and are felt to be well-suited to serve the needs of the College for the next twenty years.

At Forest Park, coordination in the use of community resources in the planning stages resulted in a cooperative program of alteration and improvement of a City-owned park located across the adjoining freeway but accessible to the College. The recreational and physical educational facilities thus obtained greatly helped to augment the otherwise inadequate site. An agreement with owners of another adjoining arena provides College parking on the weekdays in exchange for weekend parking privileges. A nearby planetarium has been made available to the College, further augmenting its potential programming. Of paramount importance to the success of Forest Park is the existence of adequate public transportation service to the campus.

The key qualities achieved in these two colleges are responsiveness and adaptiveness. It would appear the most important ingredient in their success is the leadership provided by Dr. Cossand. He gave direction without stifling the autonomy necessary for each college to meet its specific responsibilities. In a very limited period of time, using only their own internal resources, St. Louis has created a viable and visionary educational system which seems destined to have a profound impact upon the entire community.

MIAMI-DADE COMMUNITY COLLEGE

Miami-Dade Community College comprises, in its present form, two separate and complete campuses located approximately twenty-two miles apart in the city of Miami, Florida. The North Campus was completed in 1962, and was followed in 1966 by the South Campus. Certainly this College must be ranked among the most successful two-year institutions in the nation. Its far-reaching reputation stems from a number of provocative and demonstrable accomplishments. Its programs are diverse and often innovative. Use of educational media is extensive and varied. An evolutionary development of the facilities planning and environmental design program has resulted, particularly on the second campus, in an exceptionally successful and appropriate architectural concept.

There is an obvious esprit de corps among administration, faculty, and students. The enrollment has exploded from zero to 25,000 in eight years, and the College has successfully met this challenge.

Since a great deal has already been written in the educational press concerning the innovative teaching and learning programs at Miami-Dade, the emphasis here is upon the planning process employed. There are several considerations that deserve recognition. The first building to be constructed on the North Campus was, through an odd set of circumstances, inherited from the local school board. Although functionally adequate, it left much to be desired from the standpoint of esthetic and environmental qualities. In spite of this, the same local architects were retained to plan the remainder of the North Campus and to completely design the South Campus. The positive results of this decision are dramatic, and should serve as an enlightening lesson to those who contemplate building new colleges. The architects demonstrated that they were deeply concerned with the problems of creating an appropriate and relevant educational environment. Their willingness, spirit,and abilities were recognized and the results of this trust have paid off handsomely in the successful design of the South Campus. After the initial experience with the first building, it was decided, in the words of President Peter Masiko, ". . .to build better buildings and use them more intensively, rather than sacrifice quality for quantity."

In accounting for the outstanding success at Miami-Dade, the role of the President cannot be overemphasized. He provided strong leadership in the entire educational-environmental planning process,and surrounded himself with a group of responsive, energetic, and capable young administrators. This has resulted in the creation of an institution that prides itself in being forward-looking and innovative while, at the same time, managing its current educational programs in a responsible and effective manner. The College's rather unique early experience with building design problems focused particular attention on the need for an appropriate environment. In response to this, adequate funds, time, and resources were made available for research in planning the facilities. Comparison of the two campuses indicates that in the process of planning and building a marked expertise and sensitivity has been developed.

One aspect of this is the role of the architect who was, from the beginning, personally involved in the educators' philosophical discussions. The result is that the environment accurately reflects the school's primary educational objectives. This remarkable success has, from all observations, been achieved without locking the physical plant into a form that is incapable of accommodating changing educational modes.

Commitment to the use of educational media has profoundly affected facilities planning. Fresh concepts in the use of the "Learning Resources Center," developed on the first campus, have received national recognition and aroused considerable discussion and controversy. Had the original commitment been limited to the extensive use of hardware alone, the program would undoubtedly not have been so successful, nor would it have generated as much attention. However, introduction of hardware has been coupled with an extensive program producing original software.

In electing to seek new and more effective means of improving the learning process and coming closer to the ideal of a one-to-one relationship between student and teacher, Miami-Dade has made a number of related decisions. Substantial resources have been devoted to both staff and program development. Teachers' annual salaries include compensation for six weeks to be devoted entirely to the development of instructional materials. To support this program, a large professional staff with extensive production facilities and equipment have been provided for the preparation and production of a wide range of software. The learning resources centers provide extensive opportunities for experimentation in techniques with emphasis on flexibility in grouping students. It would appear that, through the preparation of original software and the provision of appropriate well-designed facilities, a needed interface between the teacher and the new educational technology has been established.

Miami-Dade represents an interesting and provocative model, not to be copied but rather studied as a guide. From the beginning, the educational and planning goals were well articulated, and there existed capable leadership and a genuine commitment to innovation.

The lines of communications were kept open. An effective planning team, which included the project architect, had adequate financial support and a significant degree of autonomy. The result is a dynamic institution that truly serves the community's educational needs as exemplified by an enrollment growth rate of 3,000 students annually. This vital program is carried on in a warm humanistic environment where, especially on the South Campus, there is an emphasis on small student groupings. It was, however, only through a careful comprehensive effort which recognized the many subtle implications within the program, that these ends were achieved.

MONROE COMMUNITY COLLEGE

Monroe Community College, located in Rochester, New York, was completed in 1967. The College was planned and built in one increment to accommodate a total enrollment of 6,000 students. The buildings are designed to permit flexible changes in the internal arrangement and configuration of the basic spaces. Area separations are, for the most part, non-load bearing and many are demountable. Lighting and air handling distribution is integrated into a modular ceiling system. Power, communication and conduit for media is run in the ceiling plenum, insuring easy additions and conversion to meet future and as yet unknown utility needs. The scheme is efficient and seemingly well organized in terms of stated educational objectives.

The resulting architectural character, however, is lacking in warmth and is somewhat impresonal. It clearly demonstrates the serious problems that planners face in their efforts to draw a reasonable balance between pure, hard, realistic practicality and the creation of a humanistic environment that contributes directly to the encouragement of meaningful person-to-person interaction. If first impressions were to be trusted, it might be concluded that, in the case of Monroe, the balance favors practicality against the achievement of a more favorable environment for learning.

Further examination of the problems faced by the College during the planning stages would, however, tend to temper this opinion. First of all, serious obstacles were created by a neighboring four-year University which apparently felt challenged by the presence of the new College. The resulting tensions are now easing, and there is a cooperative spirit beginning to emerge which promises to benefit both schools as well as the community.

Second, during the early stages of its planning, in particular, the College lacked adequate staff and resources to cope with the multitude of problems which normally occur. One consequence of this was that due to serious difficulties encountered during construction, the administrators received a great deal of community criticism and suffered considerable anguish and frustration. This situation probably took a good deal of zeal out of the original proponents.

The lesson would seem to be that the planning process is only as good as the system by which it is implemented. Where conflicts occur through inadequate coordination and there is not sufficient trained personnel, the planning processes cannot be wholly effective.

The system chosen to achieve the physical plan was what its architects term "squatter sessions." In this procedure the architects provide a team of designers and specialists for a period of one week, during which time, in cooperation with representatives of the College, an intensive evaluation of objectives and solutions is undertaken. In the case of Monroe, the resulting schematic plan that evolved formed the basis of the design that was developed into actual construction plans. Conclusions regarding the validity of this procedure should not be drawn without having further knowledge of similar projects in which this system has been employed. However, a large number of complex interrelated factors affecting the project must be defined and evaluated before meaningful conclusions may properly be reached. In view of this, it is questionable whether a one-week study period is sufficient to make such an evaluation, especially considering the number of people who should participate in the decision-making process.

In the case of Monroe, there appear to have been three basic decisions reached during the "squatter" sessions which strongly affected the design. It was determined that flexibility should be maximized, that there should be a physical connection between all buildings because of the severity of the climate, and that there should be preparation for the use of educational media.

As a result of the third decision, the College has an exceptionally well-equipped audio-visual center, and every classroom is equipped with a television receiver. However, as of this time, it is not apparent what the application of all this television capacity is to be.

In retrospect, the College has experienced serious problems, some of which undoubtedly could not have been avoided, but which will affect the relationships between the community, administration, faculty, and students for some time to come. It would appear that perhaps this may have been mitigated through closer coordination of the project and more accurate early forecasting by the planners of potential obstacles. Had greater time and resources been allocated for analysis of objectives and programming, the resulting facilities might well have provided a more creative solution to the educational needs of Rochester.

ORCHARD RIDGE CAMPUS
OAKLAND COMMUNITY COLLEGES

Of all the new colleges in the country, few have aroused as much interest and controversy as Orchard Ridge. Since it is not the purpose of this study to make judgments concerning educational philosophy, although some may be unavoidable, the effort here will be to review the planning that took place, evaluate the manner in which the original objectives were implemented and comment on the present direction of the program.

In 1964, the electorate of Oakland County, Michigan, a predominantly affluent suburban area northwest of Detroit, established the Oakland Community College District. Shortly thereafter the new Board of Trustees selected as President a young, creative, but relatively inexperienced administrator from the St. Louis Junior College District. It is now generally agreed that, had President Tirrell elected to pursue a conventional educational format, the results would in all probability have been successful. However, for whatever his reasons, and these vary with the viewpoints of those relating the history of the College, he elected to initiate a predominantly "learner-centered" program. This program broke sharply from traditional educational attitudes and methods, and had at its inception the whole-hearted and enthusiastic support of the Board of Trustees. Using the "systems approach" and building upon the experience of the military and the teachings of Dr. Postlewaite of Purdue University, the instructional program was based upon "terminal objectives" and personal instructional steps called "performance specifications." This approach lent itself to an extensive use of new media. It ostensibly resulted in a multitrack system by which each learner could proceed in a manner and at a pace most appropriate to his own needs and skills.

Supposedly this program created the need for a totally unique approach to facilities planning. A limited number of lecture halls were programmed to accommodate general assembly sessions (GAS) which, in Dr. Tirrell's program, were to be held infrequently. Smaller, open spaces to accommodate five to six students and a faculty member were planned for informal seminar sessions and small group oral testing. These were called small assembly sessions (SAS).

The major emphasis was placed upon individual learning spaces in the form of carrells, which were located adjacent to faculty offices, materials storerooms and other required resources. A statement made in December, 1966, by the former Dean of Instruction, Albert Canfield, summarizes the approach:

> . . . The application of the learner-centered instructional systems approach at Oakland Community College was adapted to reach more students with less instruction personnel, promote the learning of more information with greater comprehension and in less time.

In the years to come, it may be possible to draw some valid conclusions regarding this unusual and highly individualistic approach to the learning process. The fact is it failed under the specific conditions which existed at Orchard Ridge. However, with the passage of time, it may prove to have been a brilliant visionary scheme that was out of step with current attitudes and concepts.

In the meantime, it is possible to review the processes which were followed in planning the College and attempt to learn from the experience. First of all, it is quite clear that far too little time was allowed for programming, planning and development. Dr. Tirrell was hired in October, 1964, and two new temporary campuses were opened only eleven months later. Litton Industries was selected to assist the faculty in developing the instructional materials. There is widespread agreement that this was an impossible task in the time allowed. In addition, there are grave doubts concerning the adequacy of the arrangement with Litton. The enormity of the task of preparing the required materials and the dimensions of the problem generally were grossly underestimated. The "systems approach" was counted upon to overcome the hurdle, but this proved to be a naive hope.

The second significant factor concerns faculty-staff involvement. Apparently the administration and faculty were not adequately brought into the planning process, nor were they provided a sufficient opportunity to comprehend and digest the fundamental concepts upon which the instructional program was built. As a result of this, it became painfully clear at a later stage that genuine support for the program was lacking. In addition, many felt that decisions were unilaterally imposed from above.

Thirdly, there was insufficient recognition of the difficulties that would be encountered by both faculty and students in making the transition from the conventional teaching/learning mode to a new approach.

It seems somewhat a tragedy that, without a sufficient opportunity to test the hypothesis and experiment with the techniques, plans were drawn for a new permanent campus based solely upon these concepts. The system was architecturally locked in. The consequences were widespread failure by students, demoralization of faculty, many of whom subsequently resigned, and a failure of the system to function. This led to the resignation of President Tirrell and a major revision of the entire College program.

In the light of these dramatic events, it is difficult to react objectively to the facilities at Orchard Ridge. The buildings themselves are extremely handsome, interestingly arranged on the site, built of beautiful and appropriate materials, properly scaled to their use and well detailed and furnished.

From the information available, one must assume that the architects were provided with a rather precise description of the educational mode to be employed, since the buildings accommodate the original program quite well. The error, if indeed it was an error, seems to be that the buildings responded too well to the program. This led to the construction of such highly specialized facilities that major remodeling will now be necessary in order to accommodate revisions in the instructional format if effective use of the spaces is to be made. The presumption that the student-teacher ratio would be high has resulted now in there being far too few faculty offices. Since the majority of spaces currently devoted to open carrells have high sloping ceilings and open directly to mezzanine "SAS" areas, which in turn are inadequately separated acoustically, it is difficult to see how these facilities can be easily adapted to the revised program.

One cannot help but be saddened by the Orchard Ridge experience. The College appears to have begun with a sincere attempt to provide a superior educational experience for the young people of Oakland County. Time will undoubtedly show that the "learner-centered" concept has significant merit. It is therefore a disappointment to see this first all-out effort end in ostensible failure.

Had some of the generous expenditures made on facilities been directed instead to planning, the results might have been substantially different. Had a back-up system been provided and the facilities been designed to accommodate those variables, the adjustment might have been less traumatic.

OAKLAND COMMUNITY COLLEGE/ORCHARD RIDGE CAMPUS

RIO HONDO JUNIOR COLLEGE

Rio Hondo Junior College District was established in 1961 in what is referred to in California as a "free territory." Two subsequent efforts to pass bond issues failed, however, and it was not until 1963, when Superintendent Philip Putnam was employed, that the project got off the ground.

According to his associates, Dr. Putnam was a man of energy, know-how and pursuasiveness. It was through his efforts, together with those of the newly appointed Vice-President Morris Bergen, that community support was finally developed and a new campaign launched which resulted in the successful passage of the bond issue.

In preparation for the planning phase, a strong administrative staff was assembled, which included a dean, a business manager, and nine department heads. Most of that original group are still with the College, which speaks well for the wisdom of this selection as well as for the quality of the program.

Rio Hondo serves three diverse communities: Whittier, which is principally residential, Santa Fe Springs, which is industrial, and Pico Rivera, which has a large Mexican-American population. The latter group represents the College's greatest challenge and, in some ways, its most serious problem. There is a considerable reluctance on the part of the young people of Pico Rivera to come to the College, partly because many have had unsuccessful experiences in high school, and partly because of their parents' attitudes toward higher education. To combat this condition, the administration has created programs designed first, to demonstrate to the potential students that college can be a good and rewarding experience, and second, to win over the parents.

There is, however, another factor affecting the problem which results from the early decision on site selection. The campus is located on a handsome hilltop site with a commanding view, but the only means of reaching the College is by automobile. This may cause it to be inaccessible to the students it wishes most to serve. The resulting dilemma appears to have no obvious solution. It should serve as an important lesson to other institutions still in the process of their planning, who have meaningful objectives but still have the option of site selection.

The criteria upon which the educational specifications were based seems to have resulted from State formulas, local high school enrollment forecasts and, to a limited degree, upon measurements of community need by means of surveys. Based upon this information and their own expertise, the department chairmen developed their own programs from which educational specifications were prepared.

To a large degree, this procedure seems to have been effective. One example, however, in which the actual student interest already exceeds that which was anticipated in the original programming, is in the subject of art. This department occupies facilities which are inadequate. Expansion is now planned elsewhere on the campus; however, there is no appropriate way to enlarge the existing facilities.

Those on campus associated with this particular problem feel that an in-depth study would have revealed an unusual interest in art within the community. The department chairman felt this was the case, but was unable to document it when planning decisions were made. In this instance, it may very well be that the additional costs resulting from correcting the problem and administering a physically divided department would have paid for the services and effort required to more fully define the institution's program at the outset.

Returning to the needs of the minority community, it was recognized that equal emphasis should be placed upon both the vocational and transfer programs. This objective seems to have been reasonably accomplished.

Reflecting upon the planning process, the time and effort devoted to the preparation of the program was quite limited. Decisions affecting the nature of the physical environment were left to the architects who were also charged with the responsibility of coordinating the programs of the individual departments. Considering the difficulties the site imposed upon the design and the lack of definition of the College's environmental aims, the architects did produce a reasonably well organized and efficient solution.

A particularly outstanding achievement is the splendid Biology Laboratory and preparation area. The Department Chairman had previously been a local high school teacher who had experience developing several high school labs. He prepared the scheme very quickly, relying upon his own observations of other facilities. His personal commitment to creating a lab in which student individuality and instructor mobility would be maximized contributed greatly to the success of these areas.

In summary, it would seem that Rio Hondo is successful in the opinions of those who use it and has adequately provided for the program as it was originally conceived. A fairly conventional approach with the traditional goals of a junior college and a standard instructional format find comfortable accommodations in these new but not unusual facilities.

CHAPTER V

AN EXPERIMENT IN SIMULATED PLANNING

In an effort to further explore the process of educational facilities planning, accumulate more information about how planning may become more comprehensive, and test certain observations drawn from the field investigation, a simulated planning of a hypothetical community college was conducted. It was felt that impediments to successful planning and decision making may be illuminated by observing experienced individuals deal with a planning problem.

The simulation offered a laboratory environment in which certain variables and pressures could be excluded to allow the participants an opportunity to deal with fundamental issues. As an adjunct it was hoped that simulation might prove to be a technique that could be used to accelerate the process of training individuals who, by the nature of their responsibilities, are required to make planning decisions.

The participants and their respective roles were:

President	Dr. Donald Rippey, President El Centro College, Dallas, Texas
Board Member	Mr. James C. Haugh President, San Diego-Coronado Ferry Co. Vice-President, City Transit Systems, Inc.
Board Member	Mr. Thomas McJunkins Assistant to the Superintendent San Diego Unified School District Assistant Professor of Sociology San Diego State College
Dean of Academic Affairs	Mr. Walter Hunter, Associate Dean of Instruction, Meramec College St. Louis, Missouri
Dean of Students	Mr. Carroll Darrow, Associate Dean of Students - Community Programs University of California - Los Angeles
Faculty	Dr. Doris Meek, Former Dean of Instruction Merritt College, Oakland, California Assistant Professor of Secondary Education San Diego State College
Faculty	Mrs. Frances Torbert, Professor of Management Emeritus, San Diego State Management Consultant and Counselor

Architect	Mr. Robert Mosher, A.I.A. Mosher, Drew, Watson and Associates La Jolla, California
Student	Mr. Lonnie Rowell, Graduate Student Director of the Experimental College San Diego State College
Student	Mr. Frank Saiz, Department of Urban Affairs University of California - San Diego Past President, Mexican American Youth Association (MAYA) San Diego State College
Coordinator	Mr. Harvey J. Goodfriend, Graduate Manager San Diego State College
Consultant	Mr. Edward Webb, Assistant to the Dean of Students, San Diego State College

Ten days prior to the simulation, the participants received a booklet which provided them with information concerning "Centre City," an urban area without a community college that had made the decision to build one. The booklet contained:

Statistical data on the population, economy, level of educational achievement, and growth forecasts;

An inventory of community resources and educational facilities;

Descriptive information concerning the political climate and power structure;

Enrollment forecasts;

Community attitudes;

A map indicating relationships of major elements of the community;

A specific statement of the problems confronting the community;

An assignment of roles and distribution of decision-making authority;

Information about available sites;

A matrix indicating alternative uses of resources for both construction and operations upon which a budget constraint was imposed.

The simulation began on Monday, June 30th, at 9:00 a.m. The participants were not instructed how to proceed and told only that they had until noon the following day to complete as much of the task as they felt they could effectively deal with. The general subject areas outlined in the instructions in which decisions were to be made were:

1. The basic program for the new college including an evaluation of needs;
2. An academic plan for the achievement of these goals and objectives;
3. Definition of parameters for the environmental plan;
4. Method of implementing these decisions.

At the close of the simulation an evaluation and critique of the program was conducted. The purpose of the simulation was to observe the process that the participants established to solve the planning problem presented to them. Unfortunately there is insufficient space here to present the interesting and provocative conclusions reached by this group in attempting to solve the problem of planning a new urban community college. This problem is undoubtedly one of the most difficult facing higher education, and has profound social implications.

However, in brief, a resume of the conclusions reached in the simulation are:

1. The planners spent approximately one-third of the total elapsed time establishing the objectives of the institution and defining its goals. The objectives arrived at by a consensus of all present were that the College should:
    a) be the focal point for building programs to eradicate community ills; social, economic, political, and environmental.
    b) seek to maximize individual potential.
    c) create an environment for learning.
2. Given the problems of the typical central city, the planners initially sought to achieve the goal of the "City as a Campus." This meant integrating the facilities of the College into the fabric of the central city and, as often as possible, using existing buildings and spaces for their programs. Subsequently they tempered this position, although not altogether relinquishing it, when they recognized that in order to achieve one of their goals of giving people of diverse social and economic backgrounds an opportunity to have common experiences, there was the need to create a central place.

In addition the faculty representatives expressed a desire to have a home base where they could meet and see their colleagues. An even more persuasive argument came from one board member representing the views of the minority community when he told the group that his constituency would not tolerate a "non-campus" built for them in the central city when glamorous and, in their perception, luxurious, colleges had already been built in the outlying suburbs for middle-class whites, even though there was in fact sound educational reasoning behind the decision.

3. Another important decision in the early stages of planning was that the simulation of technical and vocational laboratories in college facilities would be avoided and that these programs would take place cooperatively in the field. This concept would be applied in other areas of instruction not typically oriented towards field experience, such as psychology and sociology, in an effort to achieve another principal goal of "eradicating community ills." It was the planners' position that as part of the learning experience students should be involved in the affairs of the community.

4. Both because of the nature of the program and the objectives of the planners, the academic plan was "learner-centered." It was recognized that some earlier decisions would not be consistent with traditional concepts of curriculum and scheduling. The concept of semesters and hour-long classes appeared inapplicable in this type of program.

   It was the intent of the planners to establish a "human centered" college in which each student developed a plan relevant to his own needs. They recognized that to achieve this goal, there would have to be special emphasis given to counseling, particularly at the beginning of the student's career. It was therefore felt that every student entering the College would first spend a sufficient period of time in group and individual counseling in which he would attempt to better understand himself, define his own goals, and then participate in designing an educational program that was most suitable to his ambitions. It was felt that every faculty member should be involved in counseling and that in an effective, functioning, learner-centered environment, faculty would ultimately have more opportunity to work with individual students.

5. The group then proceeded to make decisions concerning the allocation of resources into general categories for both the construction of facilities and the subsequent operation of the College.

In assigning relative importance to general categories of facilities, highest priority was given to a learning resources center, library, and provision for new educational media. Informal lounges, commons, student union, and activities area were also assigned highest priority. Seminar rooms, independent study areas, technical facilities for occupational programs, and technical facilities for college parallel programs were given high priority. It should be noted it was recognized that the latter two categories may not necessarily be at the central campus but in the field. The selection of the site was dictated by recognition of pressures, predominantly from the minority community, while still seeking to remain near the downtown area to secure good public transportation. The one selected was, nevertheless, of a lower value relative to several other more physically attractive sites. Low priority was assigned to large lecture halls and conventional classrooms.

In allocating resources for operations, high priority was given to institutional research, in-service training and program development, recognizing both the need to accommodate new forms of instruction and implement a program of field experience in a wide number of areas. High priority was assigned to faculty in college parallel programs, counseling, clerical and teaching assistants to support the faculty, and staff to assist in preparation of media software. It was recognized that a significant portion of the budget assigned to counseling would be used to provide faculty with released time. Administrative staff and faculty for the occupational programs were given slightly lower priority. Faculty and staff for community services were assigned lowest priority, not because this function was viewed as unimportant, but that it was not considered to be as vital as other activities.

6. In the brief time remaining, the environmental plan was discussed. There appeared to be a consensus that emphasis be placed upon decentralizing informal spaces throughout the facilities and that small group seminar areas, faculty offices, and indoor-outdoor informal areas clustered around larger courts should in turn relate to a central focal point. The relevance of the typical retail shopping center to the solution of this problem was recognized and the group agreed that this College should create an exciting and vital sense of place which not only maintained the interest of its own membership but captured the attention of the community as well.

7. In the subsequent critique of the simulation, the participants unanimously expressed satisfaction and even surprise as to how successful they had been in accomplishing their task and their personal agreement with the outcome of the exercise. A number asked the question, "Why can't we really do this?" They agreed that in addition to arriving at what they felt was a

supportable and practical solution, it was far-sighted as well. It was interesting to note that several individuals had previously participated in the actual planning of college facilities and yet indicated the simulation had been a genuine learning experience for them.

FINDINGS AND OBSERVATIONS

The simulation confirmed a number of observations made in the field study. In the opinions of most participants, present institutions of higher education are not satisfactorily meeting the needs of contemporary society. In defining and establishing the goals of a hypothetical college, using this panel of students, faculty, board members, administrators, and an architect, it was recognized that viewpoints and ideas were introduced that often would have gone unrecognized had a more conventional and typical procedure of planning occurred. The resulting dialogue had both a positive influence upon the outcomes and the position taken by "official" decision makers. It was agreed that the participation of students was especially valuable and demonstrated that their role was constructive, objective, and necessary. The planning process was enhanced by the range and diversity of views presented. In addition, several participants noted the value of having the architect present from the very beginning of planning, and the contribution he made in assisting the program. The simulation established that each participant had a genuine part to play in the process and that each fulfilled his responsibility effectively because of his presence from the beginning.

In relating the simulation to the fifteen colleges already studied, the following observations were validated:

1. The critical nature of leadership. The simulation would most likely have failed had the president not been an especially talented and sensitive leader. He demonstrated great skill in his ability to give direction without being oppressive, bring the group to points of consensus without being impatient, and keep the discussion focused on the issue without inhibiting dialogue. The simulation demonstrated what had been observed in the most successful community college districts visited, and that is one of the most critical skills of a president is leadership and effectiveness in human relations.

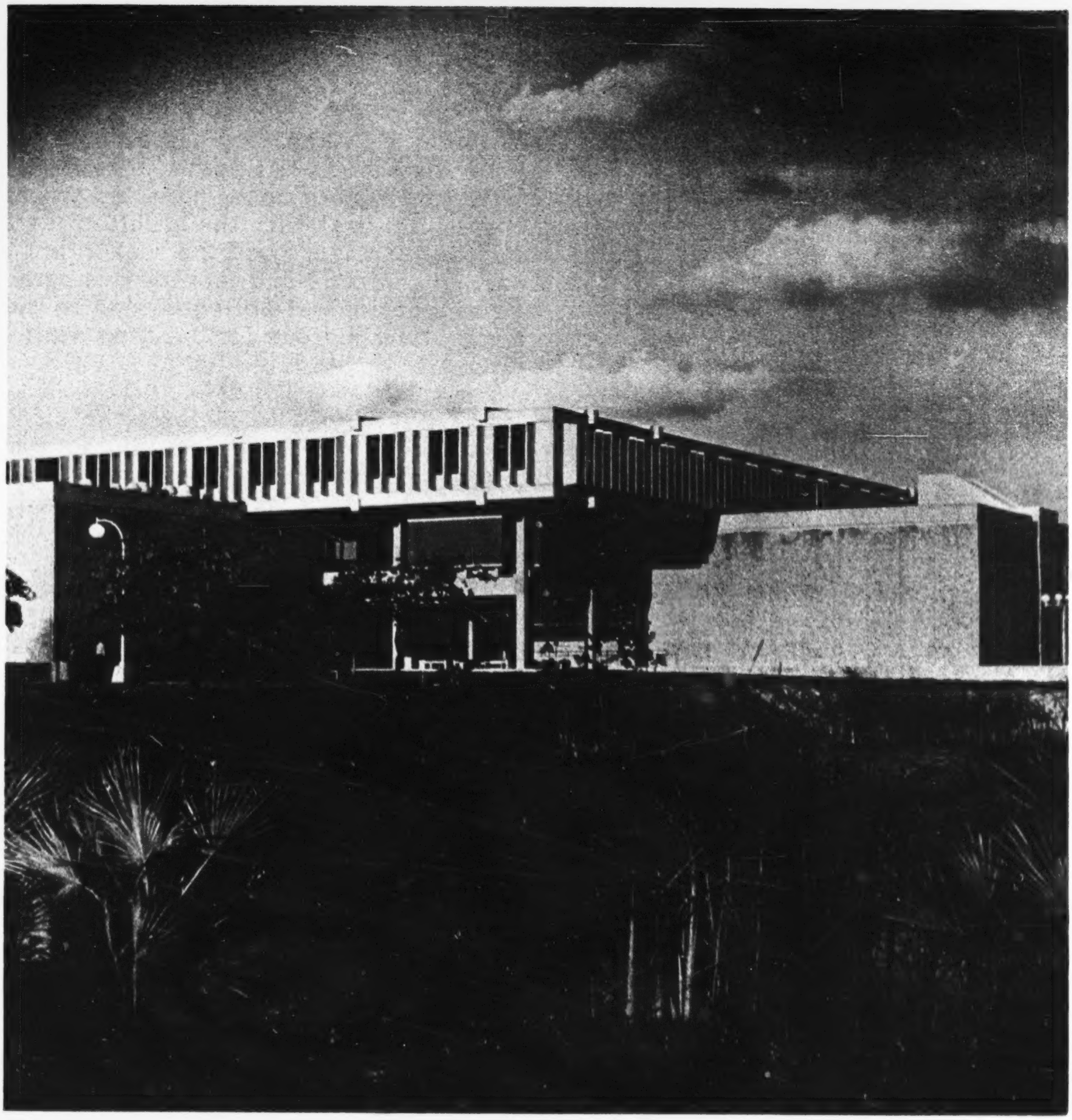
2. Willingness to examine basic issues fully. The simulation had a high degree of similarity to several colleges observed in which the time pressure was intense but, nevertheless, planners did not allow themselves to be hurried into quick decisions. Instead they took ample opportunity to thoroughly define goals and objectives first. This was done in sufficient detail so that when subsequent decisions were made, those responsible for planning had a common understanding of the

goal and the resulting outcome was far more relevant to the needs established for their particular community. In the simulation, a disproportionate amount of time was given to this task and it was obvious that subsequent decisions were made more easily and with far less disagreement because of this.

3. The necessary inputs. As mentioned earlier, the right "cast of characters" involved in planning from the beginning had a positive influence upon the overall quality of decision making. In a number of colleges visited certain vital considerations that had been overlooked may have been brought up in early planning had a broader spectrum of participants been involved. For example, in several instances the problems of the minority community had apparently not been adequately incorporated in certain fundamental decisions. In another, had an architect been given an earlier opportunity to participate, a more thorough definition of institutional goals could have led to creating a better environment, or at least with the architect as an "insider," he could have better understood the real intent of the planners. The presence of deans and faculty members in early planning, as observed at several colleges, led to the development of a more effective nucleus for building staff support.

In summary, although there is no easy way to measure the effectiveness and quality of the decisions made in the simulation, the degree of consensus and enthusiasm of all the participants demonstrated that something valuable had been created. It is noteworthy that even though the mission assigned was to plan a college, virtually no time was devoted to discussing buildings. Emphasis was instead placed upon responding to the needs of the community and relationships of people and activities. A previously undiscovered factor appeared to play a creative role in enhancing planning effectiveness. In the simulation, in contrast to the "real" world, there was a free and open relationship between people. From its inception there seemed to be little recognition of social, economic, or hierarchal differences. Perhaps the president set this tone. A first-name basis between participants helped reduce the differential in ostensible and assigned status. What seemed to happen is that ten people, most of whom had never met before, although frequently disagreeing, worked as a cooperative and harmonious unit in achieving a goal. The decision-making model allocating "votes" to certain participants was never used. Instead, consensus among all participants became the model. It is impossible to draw a conclusion here but it clearly indicates the need for both greater recognition of the process of human interaction in planning and more research on the subject.

It was demonstrated that simulation is a technique offering great potentialities for experimentation, and certainly training of decision makers. It appears to be superior to general discussion of issues by stimulating greater participation and interaction. It is clearly worthy of further application and testing.



MIAMI-DADE COMMUNITY COLLEGE / SOUTH CAMPUS

CHAPTER VI

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This report presents the findings of a preliminary investigation into an integrated approach to the planning of higher educational facilities. By cataloging references, materials, and resources available to planners, and investigating fifteen new community colleges, a foundation has been prepared for proceeding into a second phase in which there would be further in-depth research into the planning process and the application of these findings to the planning of an actual community college. The findings succeed in identifying those areas in which greater research and preparation are necessary. The procedure adopted in this phase was designed specifically to result in a general survey of the field and it was not intended to provide an intensive investigation into any particular aspect of the problem. Several subjects had to be excluded. One of major importance was financing new institutions. Another was their management, particularly the areas of budgeting and fiscal control. It is recognized that in the latter case a significant effort is currently underway in the application of "program budgeting" to education. Several additional aspects of planning and development should also be studied.

In summary, this is an era in which American higher education is challenged as it has never been before and may never be again. The social and technological pressures of the times place colleges and universities in a position which is both threatening and promising. The scope of this problem, its number of variables and complexities, make comprehensive planning both a necessity and an extraordinarily difficult task. However, a nation with the capability of landing men on the moon already has the required skills and knowledge. Ironically, much of this capability was developed in the same colleges and universities that now so desperately need to apply it.

It may seem the initial purpose of this study has been broadened. It began as an attempt to deal with planning of facilities, but any effort to deal with facilities that fails to recognize the remainder of the problem would be a perpetuation of the cause. No aspect of higher education can be treated independently. Planning is a highly interrelated activity in which there are few, if any, independent variables. Single dimension solutions are part of the problem.

In reviewing the findings, the following observations may be made:

1. Although the problems initially identified turned out to be more complex than they first appeared, the means and the capacity of achieving solutions are much more apparent. The statement by John Gardner, presented in an earlier chapter, is one of extraordinary insight. Without a doubt all of the "pieces" to the puzzle are available, and it is only the means and willingness to assemble them that is missing.

2. Traditional measures of beauty, monumentality, and functionalism are no longer relevant to architectural design for education. Instead the standard of how successfully facilities accommodate the program must be applied. A new role of architecture and architects in educational planning must emerge. In this, the architect will become an interpreter of the fundamental objectives of the institution, not a decorator or creator of show places. Too often the architect is given a program and instructed to draw a pretty plan within the limits of the budget. This conventional view of drafting beautiful buildings must be broadened to encompass the interpretation and implementation of all the important subtleties incorporated in the educational program. For example, in the urban college, with its large proportion of disadvantaged students, the quality of the environment is especially critical in establishing student attitudes and responses. Without a keen insight and understanding, the architect cannot be expected to fully appreciate the nature of this problem.

   The rising cost of constructing new facilities requires a very complete exploration of alternative means of providing learning spaces. The building systems approach may, if the necessary prerequisites are achieved, offer a potential solution. Another uncharted direction may be the integration of educational facilities into shopping centers and commercial buildings with spaces being leased instead of owned. So-called portable or relocatable facilities may offer an interim solution. With population mobility likely to become even greater, educational facilities must be capable of accommodating significant enrollment changes.

3. Educators must assume greater leadership in the development of new forms of educational media. If industry does not receive more guidance, it will set the patterns that many will have to follow. A growing number of major firms have discovered the "education industry" and are beginning to plan and develop new forms of hardware without, it would appear, sufficient communication with educators. The problems of proprietary interests and the loss of competitive position by the disclosure of new products and processes are easily recognized, yet a vital link is missing in the total planning process. In general, industry is doing its own research and development independent of the planning and development of new educational institutions and facilities. Individual firms and colleges have established relationships for experimentation with new equipment, but these limited applications may result in the ultimate production of hardware systems that fail to have a more universal application. Subsequently, due to the limited alternatives available to other institutions, programs may be different than if educators had a wider latitude of choice. It may be that the relationship of education and industry within the construct of the economic

system will never provide an opportunity for the open and free flow of ideas.

There are enormous uncharted potentialities in both new modes of instruction and the application of technology. But first, a full and comprehensive understanding of the nature of learning must occur. In retrospect it is evident that research in this area should have been accelerated some years ago. Current evidence dictates that if educators are to retain leadership and authority in colleges and universities, more soul searching, self-appraisal, and critical evaluation of contemporary forms and practices are immediately in order.

4. Planning must be appropriate to the specific needs of each institution and the community it serves. State-wide formulas and standards can only serve as very broad guidelines at most. On the other hand, there is some question whether it is necessary for each new college to "invent the wheel." A better flow of information, ideas, and experiences between planners may be useful. Existing organizations and the new ERIC system are a great asset, but there may still be other means, such as greater exhange of personnel on a temporary basis, or more frequent regional workshops, to improve and expedite the process. Consultants are viewed, whether justifiably or not, with a degree of suspicion. Too many have made commitments they could not fulfill. Perhaps there is the need for a planning "facilitator" who only seeks to assist those responsible in developing their own potentialities and exposes them to a greater number of alternatives. It is unfortunate, that in many instances planning must be performed by the president and his staff who may have been selected because they have strengths and qualities in other areas. The task of planning and developing the institution, although obviously of singular importance to them, is both new and temporary. If they perform the task conscientiously, it will require a substantial amount of preparation that may be of little future value to them or the college. Preferably, decision makers would not have to first become subject matter experts.

In summarizing the specific conclusions that may be drawn concerning planning, there are four factors which appear pre-eminent. First the vital element in any planning effort is leadership. From the field investigation and the simulation it was obvious that effective leadership is one of the most crucial ingredients. Secondly, to be comprehensive, planning must be broadly interpreted. The task cannot be narrowly defined in terms of buildings, curriculum, or specific programs. Planners must be willing and able to carefully and thoughtfully examine the many facets that constitute the total institutional matrix. Third, the human and informational resources must be included. This requires the allocation of more money to the task. For some reason there is a hesitancy to spend money on planning and development even though it is apparent such an expenditure is a modest investment compared to the subsequent costs that will be incurred in constructing and operating a college. Fourth, although it seems almost too elementary to mention, there are few means of accelerating the planning process if it is to be complete. No matter what resources are available and techniques are adopted, the effort is still basically intellectual and the decisions that are required must be made with care and precision. Recognizing exogeneous pressures to quickly provide solutions to problems that have been apparent for years may require interim facilities and programs. This is an excellent strategy as it allows testing and experimentation as long as there is a firm commitment to allow the full period for planning and personnel are not diverted to more "immediate" problems.

DE ANZA COLLEGE/ FOOTHILL
COMMUNITY COLLEGE DISTRICT

PRELIMINARY OUTLINE OF PHASE TWO

The current study demonstrates that frequently those individuals responsible for making decisions which profoundly affect the quality and nature of educational programs and facilities are severely handicapped. They lack expertise in the fields of educational, physical, and managerial planning, as they specifically apply to the conceptualizing of a new college. Although these same people may be capable of providing meaningful leadership when provided with access to the relevant resources, they are ineffective in recognizing their specific challenges and objectives without being provided more guidance and positive direction. Too often insufficient time is allowed for evaluation of the problem as a whole nor are there adequate resources earmarked specifically for comprehensive planning. Some important considerations in planning which are frequently overlooked include:

1. Explication and amplification of objectives in a form that is relevant to both short and long-range planning.
2. Development of educational and facilities programs that are genuinely appropriate to the needs of the community and contemporary society.
3. Establishment of a manageable and economically viable institution that is within the predictable capacity of the sources of financial support to sustain.
4. Accommodation of methods which aim toward a new view of the learning environment.
5. Responsiveness to contemporary demands characterized by both exploding enrollments and the needs of an urbanized society.

Phase Two of this project seeks to demonstrate that useful results may be accomplished through the systematic commitment of adequate and sufficient resources to the planning function when the objectives of the institution have been properly recognized, understood and defined.

From a relatively small investment, representing an insignificant portion of the funds spent for construction and hardware, immediate benefits will be derived and long-term gains measured in terms of insuring the usefulness of the huge investment of financial and human resources, will result.

Proposal for Phase Two

The second phase of this project would assist a specific community college district in the programming, planning, and development of a new campus. Hopefully this projected college would be in an urban setting. The center city provides planners with the most difficult challenge and the greatest potential reward. It is in this area that the problems are currently the most acute and experience the most inadequate. The selection of this setting for the project is most appropriate since the problem is most pressing and the lessons learned would be most significant. Certainly the results of solving the urban college problem could be transferred to other types of institutions since the basic objective is to find means of analyzing needs and developing this analysis into meaningful programs and facilities.

The outcome of Phase Two would serve as a model, not a formula or standardized solution. The objective is to develop a rational systematic approach to comprehensive planning that would, in turn, be useful in any college or university.

The Program

Project personnel would serve as facilitators. Their function would be to:

1. Bring together the appropriate resources and people.
2. Act as a catalyst, stimulant and critic.
3. Encourage broad effective participation of faculty and community representatives.
4. Assure that vital information, data and forecasts are carefully and, if necessary, professionally prepared.
5. Develop a method within the planning process to establish priorities that insure an effective budgeting of resources. This would most likely include use of systems analysis techniques.
6. Lay an adequate basis for continuing community support.
7. See to it that a facilities implementation program is established and supported.
8. Build in as many feedback mechanism and evaluation techniques throughout the system as possible.
9. Seek a clearly viable and supportable program in the light of the economic and human resources available to the district.
10. Cause the board, district, and teachers to take a hard look at future forms of teaching and make every effort to prepare for accommodating these potentialities within the facilities without the expenditure of large sums or the over-specialization of facilities.

11. Encourage emphasis on creating a humanistic environment in which learning is assigned the highest priority and the opportunity for individualized programs are maximized.

12. Make sure that there is sufficient capacity to generate and maintain necessary software systems to support any educational media planned.

13. Prevent the new college from over committing itself in the early stages of operation and precluding sufficient time to properly orient new students and faculty. This may require limiting the initial enrollment of the institution to what can successfully be implemented.

14. Lay the groundwork for an effective counseling program.

15. Make sure there is a commitment to an on-going development and in-service training program for faculty and administrators that will assure that the intended objectives of the educational program are being pursued or, if necessary, re-evaluated.

16. Promote management systems that are sufficient to provide for the construction, operation, and maintenance of the facilities. In addition, encourage the accumulation and application of cost effectiveness data and the most relevant budgeting procedures.

17. Seek methods and systems for the effective participation of all members of the college community in the planning process without the stultification resulting from a multiplicity of committees. This implies the avoidance of a program built around prima donnas or one that allows traditionalists to suppress change.

Instituting this program will necessitate the development of new systems of participative decision-making which take advantage of all potential inputs of information, create an on-going communications network and yet avoid becoming a typical "dead-end" planning committee. The systems analysis approach has a valuable role to play in this procedure.

The project planning team would be made up of (1) personnel assigned to the new college; (2) a core of planning facilitators and staff personnel; (3) consultants and resource personnel.

Summary

As we face a multitude of social and educational problems converging on one point in time, it becomes evident that the quantitative response to our dilemma will always be insufficient. It will instead be in the qualitative dimension that we will have the opportunity to confront the challenge. Comprehensive planning of educational facilities will be one of the crucial ingredients in achieving a positive change in the quality of the learning process. The second phase of this project takes a step in this direction.

OAKLAND COMMUNITY COLLEGE/ORCHARD RIDGE CAMPUS

APPENDIX

PLANNING COMMUNITY COLLEGES IN SELECTED STATES

From responses to inquiries addressed to almost all the states, data has been collected which summarizes the degree of participation in and assistance from state agencies in planning two-year public colleges. It should be emphasized that these statements reflect the "official" position of the state and may vary considerably from actual practice.

The brief summaries below cover:

1) description of the state system;
2) identification of where responsibility for basic planning decisions lie;
3) assistance, direction, supervision or guidelines provided by the state to planners;
4) who actually does the planning.

On the basis of the listings in The American Junior Colleges (Seventh Edition) by Edmund Gleazer, almost all of the states with community colleges are represented in this survey. Since this type of information has apparently not been collected before, there was no available means to verify responses.

ALABAMA

1. A State-wide system of junior colleges is administered by the Alabama State Department of Education.

2. The State Board of Education has responsibility for operating and maintaining the institutions. The Alabama State Building Commissions is responsible for planning the construction of new campuses.

3. Money is appropriated by the State Legislature for building costs and operating expenses.

4. The State Superintendent of Education apparently provides much of the planning for new colleges.

ARIZONA

1. Community College Districts are under the control of elected county governing boards. The State Board of Education has overall jurisdiction and the Arizona School Board Association, representing local Boards, coordinates and promotes uniform application of State regulations. The State Board of Directors for Junior Colleges represent each county and set standards for establishment and development of colleges.

ARIZONA (con't)

2. Final approval of facility design and educational program is required from the State Board of Directors for Junior Colleges.

3. There appears to be no State Master Plan.

4. Direct responsibility for planning is with the President and District Board subject to State Board approval.

CALIFORNIA

1. There are over eighty community colleges governed by local district boards. The new Board of Governors of the California Community Colleges will, through its Chancellor, direct the continuing development of the colleges in order to make them an integral element in the system of higher education.

2. Responsibility for planning and programming is with the local district board with review by officials of the Chancellor's Office and the State Department of Finance.

3. Planning guidelines, including recommendations for the allocation of space, have been prepared by the Department of Finance and the Coordinating Council for Higher Education, the agency responsible for implementation of the Master Plan.

4. Planning is generally the responsibility of the President and his immediate staff. Larger districts have established planning offices.

COLORADO

1. With the establishment of the State Board for Community Colleges in 1967 and a system of colleges, Colorado began two separate programs. There are five wholly State-supported colleges and five district colleges. Local district junior colleges are governed by their own boards and under the general direction of the State Board.

2. The respective boards are responsible for planning, in cooperation with the Commission on Higher Education. A master plan for junior colleges is being prepared.

3. A planning procedure is currently being developed.

4. In both district and State colleges, the local administration is responsible for campus planning with advice and assistance from State offices.

CONNECTICUT

1. Eight community colleges operate under the authority of the State Board of Trustees of Regional Community Colleges as part of the State System of Higher Education. Overall coordination of the entire system is the responsibility of the State Commission on Higher Education.

2. Responsibility for planning and programmin is vested in the Board of Trustees of Regional Community Colleges.

3. Guidelines for planning facilities are currently being developed.

4. Primary responsibility for planning each campus rests with the individual college.

DELAWARE

1. There is one public junior college with a southern and northern campus.

2. The Board of Trustees of Delaware Technical and Community College is responsible for planning and programming.

3. There is no State-wide master plan for junior colleges.

4. Planning is typically done by the individual Boards of Trustees.

FLORIDA

1. The Junior College Board oversees the determination of policies and procedures on a State-wide basis and is directly responsible to the State Board of Education. With the opening of the twenty-eighth junior college in 1970, the master plan will be complete. It provides for junior college education within commuting distance.

2. Planning is primarily the responsibility of the individual college working with the State Department of Education.

3. Consultants from the State Department of Education review plans at various stages of their development.

4. Each college is operated by an autonomous Board of Trustees which plans its campus with the assistance of architects and consultants.

GEORGIA

1. State-operated junior colleges are units of the University System of Georgia.

2. The office of the Board of Regents of the University System of Georgia is responsible for planning and programming.

GEORGIA (con't)

3. Guidelines have been developed as a result of a study by an advisory committee and consultants.

4. Although initial facilities are financed by the local community, data was not available as to who actually plans them.

HAWAII

1. A new State-wide system is a part of the University of Hawaii and operated under its direction

2. The University budget, including both capital outlay and operations, is approved by the State Legislature.

3. A systematic analysis of facility requirements has been prepared to guide architects.

4. Planning for community colleges is performed under the direction of the Vice President of the University of Hawaii and his staff.

IDAHO

1. State law provides six districts within which individual junior colleges, each with its own board of trustees, may be established.

2. The local districts are responsible for planning and programming.

3. Apparently there is no State master plan or guidelines.

4. The President of each college is directly responsible for facility planning.

ILLINOIS

1. State-wide planning for the system of separate junior college districts is provided by the State Junior College Board. Responsibility for overall State planning of all higher education is vested in the State Board of Higher Education.

2. Planning and programming is a shared State and local function.

3. The State Master Plan provides a few general guidelines for planning.

4. The board of each junior college district is responsible for planning its own campus with review and approval by both the Illinois Junior College Board and the Board of Higher Education.

IOWA

1. A State-wide system of "area" schools serves multi-county districts under the control of locally elected boards of directors and under the general direction of the State Department of Public Instruction.

2. Final approval of plans for an individual campus must be secured from the State Board of Education.

3. There is no actual master plan; however, general policies are set forth in the State statutes.

4. The local board of directors of each area community college is responsible for planning.

KANSAS

1. A new State Board of Education assumed supervisory responsibility for the community colleges this year. Operational control remains with the local boards of trustees.

2. Planning and programming is a local and State venture. The community initiates a study required by the State plan. It is reviewd by an Advisory Board for Community Junior Colleges and submitted for approval to the State Board of Education.

3. There are no State planning guidelines.

4. Each community junior college campus is planned by the local boards of trustees, administration and faculty. The State provides no funds for capital outlay.

KENTUCKY

1. A system of fully State-supported community colleges exists in Kentucky. There is no State-wide master plan; however, the Council on Public Higher Education has adopted criteria for recommending new two-year public institutions.

2. The Board of Trustees of the University of Kentucky is responsible for planning and programming. The State Legislature has final authority in the establishment of new colleges.

3. The Council on Public Higher Education approves all new professional schools and reviews and makes recommendations to the Governor regarding proposed new community colleges. After the site for a new college is provided by the local community, the construction is financed by the State through the University of Kentucky.

4. Once a new college is established it becomes part of the community college system of the University of Kentucky, which is responsible for planning and construction.

MARYLAND

1. Counties are defined as community college districts and there is a limit of one college per county. Appointed boards of trustees govern each district. The State Board for Community Colleges is responsible for State-wide coordination. Community colleges are included in the State Master Plan for Higher Education.
2. Planning each college is the responsibility of the board of trustees.
3. No information on State guidelines or assistance is available.
4. Planning facilities is performed by the administrative staff of the colleges, some of which have directors of planning.

MASSACHUSETTS

1. There is a new State-wide system of regional community colleges under the direction and control of the Massachusetts Board of Regional Community Colleges.
2. Responsibility for planning lies with the Board.
3. A broad master plan has been prepared and adopted.
4. Planning is apparently principally performed by the central office of the Regional Community Colleges.

MICHIGAN

1. Community colleges are operated by locally elected boards of trustees. The State Board of Education is responsible for approval of instructional programs and State-wide coordination.
2. Planning responsibility is vested in the local boards.
3. Each college must have its own long-range development plan which is in conformity with the State guide and is submitted to the State Board of Education.
4. Individual colleges are planned by the presidents and their staffs.

MINNESOTA

1. Minnesota State Junior Colleges are under the direction and control of the Minnesota State Junior College System.
2. All planning and programming is done by the Board through the Chancellor and his staff. Members of the local advisory groups are also included.

MINNESOTA (con't)

3. There is no firm State-wide master plan. Local needs and specific guidelines are applied to each individual campus as it is developed.

4. See number 2.

MISSOURI

1. Junior College Districts are under the State Department of Education with a Junior College Section which responds to the requests for new districts through local iniative petitions. A master plan has been recommended but not yet developed.

2. It appears responsibility for planning and programming is left to the local district.

3. Little assistance is available from the State Department of Education.

4. Typically the local Board of Trustees and President plan the college.

NEW JERSEY

1. Community colleges are in part local since their boards of trustees are appointed by the chairmen of the County Board of Freeholders and partly State institutions because the New Jersey Board of Higher Education must approve their programs, plans and budgets. A State master plan for all higher education is nearly completed.

2. The Board of Higher Education has final approval on educational philosophies and specifications, site selection, facilities and costs.

3. The State Department of Higher Education has recently adopted a facilities standards and planning manual which includes formulas for space utilization and costs by type of facility.

4. Each college employes its own architect. Plans are submitted to the State Office of Architecture, Engineering and Construction for their recommendation to the Department of Higher Education.

NEW YORK

1. In a very complex State-wide system, the community colleges have equal status with all institutions of higher learning in the State University under one Board of Trustees. Each college has its own board of trustees of which four are appointed by the Governor and five by the "sponsor." The State University Master Plan is revised by statute every four years.

NEW YORK (con't)

2. The planning and programming of community colleges is the responsibility of the Director of Community Colleges Facilities Planning of the State University.

3. There are established guidelines for planning facilities. The Master Plan presents an academic plan abstract for each campus.

4. Planning is under the immediate direction of the President of each campus and the University is represented by the Director of Community College Facilities Planning.

NORTH CAROLINA

1. A State system under the direction of the Department of Community Colleges of the State Board of Education with a local board of trustees for each college.

2. Responsibility for planning is unclear from the available data. The local acquisition of site and erection of buildings is, by law, a local responsibility.

3. Apparently there is no State master plan.

4. Planning is probably left to the President of each college.

OHIO

1. In 1961 legislation was adopted providing for the establishment of community college districts. Their boards of trustees are fully responsible for the affairs of the college.

2. The Ohio Board of Regents must review the general plan of the college for consistency with Ohio's Master Plan for Higher Education and general compliance with planning requirements established by the Ohio General Assembly.

3. General planning guidelines have been prepared by the Regents.

4. Planning is performed by the staff of the local district.

OREGON

1. Public community colleges in Oregon are operated by area education districts with separate elected boards of education. Area education districts may be established through the State Board of Education by a special election.

2. Overall planning is primarily with the State Board of Education. Coordination of community college planning with other aspects of higher education is through the State's Educational Coordinating

OREGON (con't)

Council, which includes representation from the Board of Education, the State System of Higher Education, and the private colleges.

3. No State financial support for planning is available, but consultative services are provided. Many elements of a master plan are included in legislation, the existing organizational structure, individual college long-range plans, and State-wide enrollment projections. Construction is partially financed by the State.

4. The local community college board and administration are responsible for planning with limited consultative service available from the State Board. Planning is subject to State Board approval as it relates to State construction funds.

PENNSYLVANIA

1. The State Board of Education is responsible for policies, standards, rules and regulations for the establishment and operation of locally sponsored community colleges under the provisions of the Master Plan for Higher Education.

2. Plans and specifications for all facilities supported by public funds must be approved by the Superintendent of Public Instruction.

3. Each college is to prepare a ten-year physical plan. The State provides general guidelines.

4. It appears planning is actually the direct responsibility of each college. The college is required to establish its own physical plant within three years of admitting its first class.

TEXAS

1. At present all institutions of higher education are coordinated State-wide with a master plan anticipated to divide public education into a community college division, senior college, and a division of complex universities. Public junior colleges are governed by elected boards of trustees from the taxing districts.

2. Coordinating Board of the Texas College and University System serves as the responsible body for programming and planning.

3. The State has an Assistant Commissioner for the Junior Colleges who ostensibly assists districts in planning.

4. The local board is directly responsible for planning and typically it is performed by the College President and his staff.

VIRGINIA

1. The State system is under the control of the State Board for Community Colleges appointed by the Governor. Powers are delegated to local community boards.

2. Recommendations regarding the need for facilities may be submitted by the local board to the State Department of Community Colleges and the State Board.

3. A master plan for community colleges has been prepared.

4. New colleges are planned by the staff of the State Department of Community Colleges until a local college is organized. Specific planning for subsequent projects is performed by the local college administration and board, subject to review and approval by the State Department and the State Board.

WISCONSIN

1. There are no junior or community colleges as such, but there are sixteen two-year branches of the University of Wisconsin, plus eighteen vocational-technical districts each of which contains at least one technical institute offering associate degree opportunities.

2. Three separate State systems are responsible for their own planning and programming.

3. No State-wide master plan or guidelines exist, but guidance is offered by the Coordinating Council.

4. Planning is done by the separate systems in cooperation with local communities.